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## Original Articles

### POPULAR EDUCATION AS A STIMULUS IN PUBLIC HEALTH WORK*

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In this paper I have made no effort to treat the subject of public health administration exhaustively, nor have I referred extensively to methods in use by other hygienists of the present or the past. I have simply stated some conclusions, together with the data on which they are founded, and in a way this paper is like a case report, dealing with my own work.

I have long been of the opinion that there are two distinct aspects of state medicine. One of these is knowing the remedy to be applied, and the other is knowing how to get the people to apply the remedy. The first consideration I take for granted as a requisite possessed by every good sanitarian. The second consideration—how to get the people to apply the remedy—is the main theme of this paper.

There are men, and intelligent men, who believe that the sanitarian, having decided on what he believes is the wisest course, has nothing left to do but to sail that course, regardless of public opinion. The sanitarian is a specialist in his line. He knows better than the public what health measures are needed. It is a sacred obligation with him to act in accordance with what he knows to be right, let the people believe what they will. This view is the correct one whenever the sanitarian has authority and means necessary to carry his plans into execution. But there are many reforms needed in our country which are at present outside the authority of the health officers. To secure the authority and means to enact the needed reforms is the task of the sanitarian.

This brings us face to face with the question how the people can be induced to yield the authority and money for the purpose of combating the diseases which menace the public health. To meet this issue successfully the sanitarian must possess a certain degree of tact, political ability, or statesmanship—call it what you may. He must be able to divert a part of the sum total of political power invested in the people and guide it into certain channels.

In doing this the sanitarian does not deal with the populace directly, but with representatives of the people, public officers. These officers draw their powers from the rank and file of the citizens. While to a certain extent they are leaders, yet they are to a great extent followers of public opinion. Personally they are willing to do anything to help the cause of sanitation, but before "going on record" as favoring the establishment of an improved water-works system, for instance, they usually delay action until popular clamor makes itself heard in favor of the proposed reform.

*Vox populi* is *vox dei*. The sovereign people are the fountainhead of all authority in a free republic, and to get the authority, or the money, which is the sinews of war against disease, it is necessary to go to that fountainhead. If you stop short of the fountainhead, there is always some one else upstream from you who is diverting the current.

I have found that one most excellent method of reaching the people is through the newspapers. In the administration of almost any health officer, there occur events of great value as "news." In giving these news items to the press, it is well to sandwich in a miniature lecture on sanitation with each news item. Of course, if the tidbit of news is ballasted too heavily with scientific "dope," it will find the waste-basket. But in many cases, an interview from the health officer, telling "how it happened" is warmly welcomed by the press, even though the interview read like a primer on sanitation.

Next to his ubiquitousness the most characteristic thing about the average newspaper reporter is his skill in getting things wrong. This makes it necessary to prepare certain important interviews and hand them in already written to the newspapers. It is easy to overstep the line here and overlook the newspapers.

In newspaper work, as in every other branch of hygienic education, cooperation by different health officers and physicians is very important. Public meetings participated in by the lay and professional public are an excellent means of stimulating sanitation. The physician has by dint of hard labor become master of a certain amount of that divine attribute called knowledge. The public is hungry for this knowledge; people never fail to avail themselves of an opportunity to stand by and pick up the crumbs from a medical conversation. The public meeting offers the health officer an opportunity to dole out to them such store of his knowledge as they can digest and assimilate. To get best results it is absolutely necessary that no physicians should stand aloof and criticize. Therefore, careful organization is a prerequisite.

Closely related to these public meetings are the so-called traveling institutes of hygiene, as elaborated by my friend, Dr. Mayer, of Louisiana. The "tuberculosis exhibits" are all special phases of his original idea, which was promulgated years before the awakening on the subject of phthisis. The traveling exhibit, consisting of pictures, models, charts, figures, and other accessories are valuable because they stimulate interest and also because they make the subject-matter easier to grasp. Concrete facts are learned easily, and the eye aids the brain in learning the scientific data presented in one of these traveling institutes of hygiene. I am of

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the opinion that the typhoid fly should be included in these exhibits as well as the tuberculous cow. I think the vaccination problem should be explained and pictures bearing on it exhibited. In certain of the southern states the malarial mosquito should be explained. In short, I think that traveling exhibits are needed to teach the whole of sanitation and preventive medicine, as well as tuberculosis.

In this connection it occurs to me that the state boards of health are in a position to aid the counties or cities by sending on request a lecturer and demonstrator with an exhibit. The peculiar quality of mind which leads the people to heed the advice of a stranger, where they ignore the words of their lifelong friends, is proverbial. For this reason the health officer of County A can go to County B and lecture with splendid results. Later, the health officer from County B, looked on as a commonplace man in his own county, can come into County A and preach sanitation with results as brilliant.

In a similar way, the U. S. Public Health and Marine-Hospital Service can materially assist each individual state in the battle for better public health. The surgeon who is an officer in this distinguished service enjoys a prestige and renown commensurate with the great corps to which he belongs. The public looks up to him. His words are heeded. Furthermore, his official position is a guarantee that he will be free from any local prejudice. The public does not suspect his motive. He is probably not even a resident of the state in which he may lecture, and may expect to leave that state immediately, possibly never to return. Under these circumstances his words have an unusual burden of meaning which make them productive of much good. I then would call your attention to the fact that cooperation between county and state, and between state and nation, is essential to the best interests of public health.

In conclusion, I desire to refer to one phase of public health administration which frequently causes embarrassment, especially in the southern and western states. I refer to the fact that many of our public health officers are engaged in the private practice of medicine. This is at present a widespread condition, and one that is as natural as for water to run down hill. But it very seriously hampers the cause of public health. The health officer may be entirely conscientious and I take it for granted that he is, and that he does his work thoroughly. The fact remains, however, that his competing fellow practitioners of medicine look askance at any public utterances which he may make. The "publicity side" offends them. They want him to keep himself in the background. Now, no health officer can do his duty without appearing in the lime-light from time to time. Hence he is driven to do one of two things—either offend his fellow practitioners by coming out in the open, or compromise his conscience by lying low and letting things drift. He has no choice between the two. The only logical result will be in the end that health officers will be paid to do their work, so they will not have to do practice on the side to gain a livelihood. We should work toward that end, remembering that for the present we must do the best we can with the means at our disposal.

## ABSTRACT OF DISCUSSION

Dr. William Porter, St. Louis: The education of the people underlies all activity and organization in this work. People must know. Once having knowledge they will support that which touches their lives and homes and happiness. It is well, it is necessary, to have men fitted to give this instruction, and these men or others should be ready to direct the growth and movement which will surely come in the wake of public instruction. In the masses, even in the most ignorant parts of our cities, where crowded, congested living is most pitiable, is a latent force which once aroused is potent for good, and for progress. In St. Louis is a man whose home and early life was in the worst ward of the city. His associations were bad; he grew up thoughtless and careless; his name was synonym for leadership among the worst classes. Slowly but surely the desire came to him to do something for his associates. In so doing he lifted himself. He saw a great light—to-day he is an honored state senator, one of the best helpers we have in all that pertains to the uplift of the needy and the limitation of disease. It is such influences as these, resulting from years of educational work in the field, that has given to Missouri its present beautiful sanatorium for incipient tuberculosis with its half a million appropriation; has given it the Commission on Tuberculosis with its $125,000 for five years' further educational work, and has entered the penitentiary with an investigating committee and aids in the segregation of convicts.

We of Missouri are often asked why our people are so liberal to these causes. It is simply the harvest of the seed that has been patiently sown. We are fortunate in that our governor and the mayor of St. Louis are with us, but back of these are the masses—the people on whom we can depend. I urge the use of the newspaper under proper surveillance, the public lecture, and the instruction of the school children by illustration and text-book. The former is an important but delicate matter; the latter is best of all for future results. Every child should have access to lectures and exhibits and carry into the home a well-prepared leaflet with simple notations. Five hundred thousand of these have been carried into St. Louis homes by the children of public and parochial schools.

Dr. Juan Guiteras, Havana, Cuba: There does not appear to be any sustained effort made throughout the South to impress on the people the lessons of experience in the matter of antimosquito campaigns for the prevention of yellow fever and malaria. The cities of the South, I am sorry to say, are still trusting solely to methods of quarantine that have been proved in the past, on many occasions, to be inadequate. Unfortunately, the great object lesson offered by Cuba has not been brought clearly before the people; on the contrary, in some quarters an effort has been made to obscure it. The success of Cuba in keeping down and within reasonable limitations the recent visitation of yellow fever in that country, has not been appreciated in the proper spirit by our neighbors of the southern states. During three years of our recent visitation (1905-1908) we had nowhere the widespread epidemic manifestations that characterized the days of the Spanish domination there, or of the recent outbreaks of Laredo, New Orleans and Pensacola. The reasons for this difference are two: First, we have never hesitated a moment in announcing the first appearance of the disease, and in taking frankly and openly the necessary step towards preventing its propagation. The press, throughout the South, did not, as a rule, endeavor to show the advantages of such a procedure. On the contrary, the impression was created, with a degree of unfairness which was very unpleasant at times, that the cases were being discovered and made public by state and United States medical representatives in Cuba. The people of the South were usually informed by cable in words to this effect: "The representative of the State Board of Louisiana in Cuba reports three cases of yellow fever to-day in Havana;" or another officer would cable: "I found a case of yellow fever to-day at Las Animas Hospital," and so forth. Now, as a matter of fact, the cases were invariably discovered, shown, and reported by the Cuban sanitary authorities, who were most anxious to demonstrate what they considered an essential part of their successful method of controlling the disease. To report the facts otherwise was unfair to Cuba, and it was most unfair to the people of the South who lost thereby the educational advantages that they should have derived from the contemplation of a successful campaign on the basis of a prompt declaration. The second reason of the difference in the results obtained is the maintenance of a persistent and continued fight against the stegomyia. I am afraid that little or nothing is being done in this direction throughout the South.

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# MEDICAL SUPERVISION OF ATHLETICS AMONG BOYS AT BOARDING SCHOOL *

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Several years ago a boy of 15 was brought to one of us with a markedly dilated heart. For some weeks he had been running a mile nearly every afternoon at one of the best-known boarding schools in New England. Since then, among others, a boy with pulmonary tuberculosis, another with so-called physiologic albuminuria, another with leukemia, a fourth with pronounced cardiac insufficiency and much overgrown, from four different and all excellent boarding schools, have been brought to the attention of one of us, and in none of them had their condition been recognized or properly studied. The observation of these cases stimulated this preliminary study of selected boys before and after exercise at a number of boarding-schools.

We first examined 38 boys, 36 of them from five boarding schools, two in Connecticut, two in New York and one in New Jersey; and 2 of the boys from a day school in New York City. After examination each boy ran a mile at his own pace, was re-examined immediately on finishing the run, and in most instances a third time, from one-half to three-quarters of an hour later. The accompanying table shows the results of our examinations.

The method followed in each case was, first, to count the pulse and to estimate the systolic blood-pressure in the vertical posture; then to determine in the horizontal posture whether there existed any increase of cardiac dulness, the relations of the pulmonic and aortic second sounds, the presence of apical or basal murmurs and the existence of a thrill; and, while the boy was still in the recumbent posture, to count the pulse again and to estimate the systolic blood-pressure. The first specimen of urine was passed by each boy just before the run and, with the exception of the nine boys at School A, the second specimen was passed during the time of the third examination, one-half to three-quarters of an hour after the exercise. In School A a period of about two hours elapsed after the exercise before the second specimens were voided. These specimens were all examined as freshly as possible by Dr. Wilson G. Wood, to whom our thanks are due. He, of course, knew no details of our physical examination.

*Selection of Boys.*—At each school an effort was made to select half the number from boys especially vigorous, athletic, muscular and well developed, and the other half from boys who had grown considerably especially in height during the past two years. This effort was only partially successful.

*Selection of Exercise.*—It was found impossible to examine boys before and after a contest. One of us made this attempt at a dual meet between two schools but failed. The interest was centered elsewhere and the noise and confusion rendered examination impracticable. We chose a mile run as being a good test of strength and endurance for boys of this age, able to participate in football, hockey, basket-ball, track athletics, rowing and baseball. Each boy was told to take his own time and not to overexert himself, but to finish his run reasonably strong. There was no competition, although the boys were interested and some of them surprised at the time they made. Generally speaking, the most athletic of the boys made the best time and usually showed the least effect of the exertion.

We wish to call especial attention to some of the features of the examination in the following:

*School A.*—Nine boys training for the crew were selected. After examination each boy ran a mile at his own speed. No. 4, aged 18, one of the best oarsmen and said to be the hardest worker, exhibited a reverse blood-pressure,[1] an enlarged heart both to the right and left, a loud systolic murmur at the apex and base, an accentuated pulmonic second sound, and a slight thrill at the apex. His urine, voided after exercise, showed a marked trace of albumin, and casts were detected in both specimens. The boy stated that he tasted blood during the run, and that this was a usual occurrence with him during or after hard exercise. Two other boys exhibited casts in both specimens. Three other boys exhibited albumin in both specimens.

*School B.*—Nine boys were selected as well as possible according to the plan specified above. No. 17, aged 19, the best runner in the school, who recently broke the school record for a mile, ran his mile easily and in good time. He exhibited an enlarged heart both to the right and the left, a heaving apex-beat, a systolic murmur at the apex and base, and an accentuated pulmonic second sound. His urine, voided after the run, showed a marked trace of albumin.

No. 11, aged 19, a large, muscular, strong boy, was said to have injured his heart playing football two years before. He showed a reverse blood-pressure, a slight emphysema, a slight increase of cardiac dulness to the left, a systolic murmur at the apex and an accentuated pulmonic second sound. His urine, voided after exercise, exhibited a faint trace of albumin.

No. 10, aged 17, a tall, slight boy, who had grown four inches in the past year, had been compelled during the winter to enter a lower form. He has had digestive disturbances, some circulatory weakness and several attacks of furunculosis during the past two years. He exhibited a reverse blood-pressure; his pulse before exercise was 118 in the vertical posture and 96 in the horizontal; after exercise, 152 and 124. His cardiac dulness was diminished, and he was exhausted after the exercise. Albumin and casts were found in both specimens of urine.

*School C.*—Eight boys were selected at random. No. 20, aged 17½, was a large, well-developed boy, had ruptured a vessel in the sclera of one eye a few days before while wrestling. He exhibited a high blood-pressure, vertical 175 mm., horizontal 150 mm., before exercise. His heart was enlarged, there was a loud systolic murmur at apex and base, and an accentuated pulmonic second sound. Both albumin and casts were present in the urine voided after the run.

*School D.*—Seven boys were selected from those who were training for track athletics; all of them showed albumin, and three of them casts, in the specimens of urine passed after the exercise.

No. 30, aged 15, a tall boy with remarkably well-developed legs and thighs, had grown decidedly during

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1. This method of testing the blood pressure was suggested to us by Dr. George L. Meylan, Adjunct Professor of Physical Education, Columbia University. The existence of what we have termed a "reverse blood-pressure," i. e. a higher blood-pressure in the horizontal than the vertical posture, he tells us, has often suggested some circulatory weakness which seems wise to supervise by repeated examination before a student is allowed to compete for a position on some college team.

the past year. His pulse was 180 after the run. His blood-pressure was rather high before and rather low after the exercise. His urine contained albumin and casts in both specimens, and in the one voided after the run the albumin was a heavy trace and the casts were in great abundance.

In addition to these thirty-eight boys, six boys at School G in Massachusetts were examined before and after a quarter-mile run, the results of which are summarized in Table 2.

One of these boys, at the age of 13, exercised unduly the first year he passed at this school and was found to have a dilated heart when he returned home on a vacation. Our examination, made at the age of 19, showed slight thickening of the arteries, slight cyanotic color, an enlarged heart, a loud systolic murmur at the base, and an accentuated pulmonic second sound.

Eight boys were examined at School H in Massachusetts, before a one and a half mile practice row, and four of them after the row. Two exhibited a reverse blood-pressure. Albumin was found in all four specimens of urine voided after exercise; the sediments were not examined because the urine had decomposed. One of these four boys showed after the row, in addition to the reverse blood-pressure, a moderate cardiac dilatation and slight evidence of exhaustion.

Six of the Columbia freshman crew, ages 16 to 22, average 18½, were examined before and after a light practice row. The blood-pressure was reversed in three

AGES, 15 TO 19 YEARS; AVERAGE, 17 YEARS. TIME OF RUN, 61 TO 72 SECONDS

| | No. | % |
|---|---|---|
| ***Pulse*** | | |
| Irregular pulse | 3 | 50 |
| 80 or above, before | 2 | 33⅓ |
| Horizontal > Vertical | 0 | 0 |
| 150 or more, after | 0 | 0 |
| 112 or more, half hour after | 0 | 0 |
| ***Blood-Pressure*** | | |
| H > V. before | 3 | 50 |
| H > V. half hour after | 1 | 16⅔ |
| 150 M.m. or above, before | 0 | 0 |
| ***Heart*** | | |
| Dulness + to Right | 2 | 33⅓ |
| Dulness + to Left | 1 | 16⅔ |
| Dulness + above | 0 | 0 |
| Pulse 2nd + | 2 | 33⅓ |
| Aortic + | 2 | 33⅓ |
| Apical murmur | 2 | 33⅓ |
| Basal murmur | 3 | 50 |
| Thrill | 2 | 33⅓ |
| ***Urine*** | | |
| No mkd. + indican; no acetone | 2 | 33⅓ |
| Albumin, before | 0 | 0 |
| Casts, before | 2 | 33⅓ |
| Albumin, after | 1 | 16⅔ |
| Casts, after | 1 | 16⅔ |
| Red blood cells | 1 | 16⅔ |

TABLE 1.—EFFECTS OF EXERCISE

| Form of exercise | A.—One Mile Run (plus). | | | | | | | | | B.—One Mile run. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athletic No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| Time in minutes | 8 | 9½ | 6¾ | 8 | 8+ | 7½ | 7 | 7 | 7 | 8 | 6¾ | 5¾ | 7½ | 6 | 8¼ | 5½ | 5¾ | 7½ |
| Exercise habit | Mod. | Sl. | Sl. | ++ | ++ | Mod. | + | + | ++ | ++ | ++ | ++ | m. | + | Sl. | + | ++ | ++ |
| Boy's age | 19 | 17 | 17 | 18 | 19 | 19 | 18 | 17+ | 19 | 17 | 19 | 19 | 19 | 16 | 19 | 18 | 19 | 21 |
| During past 2 years: ↑ in height | + | + | 0 | + | 0 | 0 | 0 | + | 0 | ++ | 0 | + | 0 | + | 0 | 0 | 0 | 0 |
| marked increase ↑ in weight | + | + | 0 | + | + | + | 0 | 0 | + | + | + | + | + | + | + | 0 | 0 | 0 |
| | | Tired. | | Tasted blood. | | | | Had a cold. | | Exhausted. | Emphysema. | Pale. | Dusky. | | Exhausted. | | Dusky. | Tired; played baseball. |
| Pulse: Irregularity | + | 0 | 0 | 0 | + | 0 | 0 | + | + | + | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 |
| Before exercise: Vertical | 84 | 94 | 74 | 50 | 76 | 80 | 70 | 64 | 60 | 118 | 88 | 80 | 72 | 76 | 92 | 74 | 70 | 76 |
| Before exercise: Horizontal | 68 | 74 | 62 | 48 | 54 | 60 | 66 | 52 | 54 | 98 | 70 | 78 | 80 | 64 | 98 | 68 | 64 | 72 |
| After exercise: Vertical | 134 | 142 | 120 | 112 | 108 | 140 | 130 | 122 | 108 | 152 | 130 | 156 | 128 | 124 | 176 | 144 | 130 | 162 |
| After exercise: Horizontal | 118 | 132 | 98 | 96 | 104 | 112 | 112 | 120 | 98 | 124 | 98 | 116 | 108 | 100 | 110 | 116 | 104 | 104 |
| ½ to ¾ hrs. after exercise: Vertical | 104 | 114 | 102 | 76 | 84 | 108 | 100 | 90 | 80 | 124 | 88 | 104 | 112 | 88 | 100 | 100 | 84 | 104 |
| ½ to ¾ hrs. after exercise: Horizontal | 72 | 90 | 80 | 68 | 74 | 94 | 76 | 66 | 64 | 100 | 72 | 96 | 94 | 76 | 98 | 88 | 84 | 100 |
| Blood pressure: Before exercise: Vertical | 138 | 128 | 135 | 120 | 130 | 128 | 140 | 118 | 150 | 112 | 126 | 160 | 128 | 128 | 184 | 146 | 145 | 150 |
| Before exercise: Horizontal | 134 | 118 | 120 | 128 | 130 | 128 | 130 | 128 | 140 | 122 | 138 | 153 | 135 | 112 | 132 | 128 | 130 | 135 |
| After exercise: Vertical | 140 | 175 | 170 | 178 | 158 | 170 | 165 | 138 | 150 | 115 | 180 | 200 | 185 | 180 | 182 | 180 | 200 | 150 |
| After exercise: Horizontal | 132 | 108 | 115 | 140 | 148 | 141 | 135 | 126 | 120 | 120 | 160 | 195 | 160 | 160 | 160 | 148 | 160 | 152 |
| ½ to ¾ hrs. after exercise: Vertical | 105 | 115 | 100 | 105 | 108 | 115 | 112 | 112 | 132 | 100 | 128 | 135 | 115 | 120 | 135 | 135 | 134 | 130 |
| ½ to ¾ hrs. after exercise: Horizontal | 118 | 120 | 120 | 130 | 120 | 130 | 118 | 130 | 130 | 120 | 128 | 135 | 140 | 118 | 135 | 150 | 130 | 125 |
| Heart: Cardiac dulness, + to right | + | 0 | 0 | + | Sl. | Sl. | Sl. | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | + | 0 |
| Cardiac dulness, + to left | 0 | Sl. | 0 | ++ | + | 0 | Sl. | 0 | 0 | 0 | 0 | Sl. | 0 | + | 0 | 0 | ++ | Sl. |
| Cardiac dulness, + above | 0 | 0 | Sl. | 0 | 0 | Sl. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pulmonic 2d, + | 0 | + | 0 | + | + | Sl. | 0 | Sl. | 0 | Sl. | + | + | 0 | + | Sl. | 0 | + | Sl. |
| Aortic 2d, + | 0 | 0 | Sl. | 0 | 0 | 0 | Sl. | 0 | Sl. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Murmur, apex | + | Ft. | + | ++ | ..... | + | + | 0 | Ft. | 0 | Ft. | + | + | 0 | + | Ft. | ++ | 0 |
| Murmur, base | + | + | + | ++ | + | + | 0 | 0 | Ft. | 0 | Ft. | + | + | 0 | + | Ft. | ++ | 0 |
| Thrill | + | 0 | 0 | ++ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | Art. + M. P. | | | | | | | | | Gallop. | | Hearing | |
| Urine: Albumin, before | 0 | + | +++ | 0 | + | 0 | 0 | 0 | 0 | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 |
| Casts, before | + | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 |
| Albumin, after | ++ | ++ | ++ | ++ | + | + | + | + | 0 | ++ | + | ++ | + | + | + | + | ++ | 0 |
| Casts after | +++ | + | + | + | 0 | 0 | + | 0 | + | + | 0 | † | + | 0 | 0 | 0 | 0 | 0 |
| Albumin, next morning | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Casts, next morning | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

Indican: No marked excess was found in any specimen. Acetone: No acetone found in any specimen.

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50 per cent. One of these three, who had been under Dr. Meylan's observation on account of a rapid pulse persisting after an attack of influenza in February, showed in the examination of urine after the row a heavy cloud of albumin and many casts. Another, aged 19, had grown markedly in the past year. The examination of the urine, both before and after, showed a trace of albumin and many casts in the specimen after the exercise. Another of these, aged 18, was the only one who showed any evidence of fatigue after the light row. He exhibited some emphysema. He had played water polo hard during the winter. There was a cloud of albumin and casts in the specimen taken after the exercise.

Ten Marathon runners were examined after the race, and all except one exhibited a low blood-pressure; 90 to 100 mm. The exception, the winner, showed 160 after and 120 before. Three were examined before and after another race. In the examination afterward all showed a blood-pressure below 105, while in that made before all showed a blood-pressure above 140.

These examinations show that some of the boys should not be allowed to take part in strenuous exercises or competitive sports unless carefully supervised by a competent physician. Permanent physical injury has resulted in the past which might have been prevented by careful watching; and the same harm will occur in the future. In most of the schools we visited an earnest effort has already been made to watch the boys more carefully; but, in our judgment, it was more in the direction of copying the college athletic training, in the effort to turn out winners, than with the idea of individualization and careful medical supervision. Even a competent supervisor is hardly capable of discriminating in some of the border-line cases cited above as to whether to permit exercise, to increase or to diminish it. The school physician examines each boy in the fall and again whenever called on to do so; but we found no definite, purposeful method of physical or urinary examination before or after such a functional test as we applied; nor any plan for an examination by the school physician before and after hard-matched games, although the frequency of the latter in some of the schools was quite as striking as at colleges. One of these physicians told us that some of the boys grew so rapidly that the fall examination was of little or no value in the spring.

It is not the province of this paper to discuss the significance of albumin and casts in the urinary analysis

ON THIRTY-EIGHT SCHOOLBOYS

| C—One Mile Run. | | | | | | | | D.—Equivalent of 1 Mile +. | | | | | | | E.—One Mile Indoors. | | | F.—One mile. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
| 10 | ..... | 8¼ | 6¼ | 5½ | ..... | ..... | 8½ | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5½ | 6¼ | 6 | 6 | 5½ |
| Sl. | + | + | + | ++ | + | + | Mod. | + | + | Mod. | Mod. | Sl. | Sl. | Mod. | ++ | Mod. | Mod. | + | + |
| 18 | 17½ | 16 | 18 | 19 | 15¼ | 17 | 15⅜ | 19 | 18⅛ | 14⅜ | 15 | 17⅜ | 18 | 17 | 17 | 18 | 18 | 20 | 19 |
| 0 | 0 | + | 0 | 0 | + | 0 | + | 0 | 0 | 0 | ++ | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 |
| 0 | 0 | Sl. | 0 | + | Sl. | 0 | + | 0 | 0 | + | + | 0 | 0 | + | + | + | 0 | 0 | + |
| Vegetarian. | Ruptured bl. ves. edema. | | Tired; played baseball. | | | | Dusky. | Pale. | | Did not finish. | | Exhausted. | Did not finish. | | | | Pale. | Exhausted. | |
| 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ++ | 0 |
| 84 | 96 | 102 | 84 | 86 | 90 | 96 | 104 | 82 | 74 | 90 | 78 | 74 | 80 | 88 | 84 | 64 | 84 | 96 | 84 |
| 72 | 100 | 96 | 68 | 72 | 86 | 88 | 102 | 82 | 60 | 72 | 86 | 62 | 76 | 80 | 76 | 80 | 84 | 84 | 64 |
| 120 | 120 | 160 | 134 | 112 | 140 | 146 | 171 | 144 | 126 | 98 | 120 | 132 | 120 | 152 | 120 | 144 | 150 | 116 | 156 |
| 108 | 120 | 128 | 124 | 96 | 112 | 112 | 116 | 120 | 92 | 86 | 120 | 100 | 112 | 108 | 132 | 114 | 120 | 108 | 116 |
| ..... | 120 | 118 | 116 | 100 | 96 | 92 | 104 | 108 | 92 | 90 | 116 | 104 | 116 | 112 | | | | | |
| ..... | 100 | 112 | 108 | 72 | 78 | 80 Irreg. | 92 | 88 | 80 | 86 | 74 | 88 | 100 | 84 | | | | | |
| 132 | 175 | 138 | 140 | 135 | 140 | 130 | 132 | 115 | 140 | 108 | 150 | 130 | 132 | 150 | 138 | 134 | 136 | | |
| 122 | 130 | 128 | 120 | 130 | 130 | 130 | 130 | 120 | 148 | 128 | 150 | 140 | 138 | 130 | 140 | 126 | 124 | | |
| 120 | 168 | 135 | 150 | 170 | 165 | 160 | 120 | 170 | 120 | 115 | 132 | 105 | 135 | 128 | 134 | 134 | 166 | | |
| 135 | 165 | 150 | 165 | 130 | 160 | 178 | 140 | 130 | 150 | 140 | 170 | 140 | 150 | 140 | 166 | 124 | 144 | | |
| ..... | 148 | 116 | 100 | 122 | 128 | 120 | 110 | 100 | 112 | 100 | 100 | 110 | 120 | 140 | | | | | |
| ..... | 138 | 120 | 112 | 130 | 138 | 118 | 135 | 105 | 120 | 120 | 110 | 130 | 128 | 140 | | | | | |
| 0 | ++ | 0 | 0 | Sl. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | Sl.+ | 0 | 0 |
| Sl. | Sl. | 0 | Sl. | Sl. | 0 | 0 | 0 | Sl. | 0 | 0 | 0 | Sl. | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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| 0 | 0 | Sl. | 0 | + | Sl. | + | 0 | 0 | 0 | Sl. | 0 | + | 0 | + | 0 | Sl. | Sl. | 0 | Sl. |
| 0 | ++ | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | + | 0 | 0 | 0 | 0 | 0 |
| Ft. | Ft. | Ft. | + | + | + | + | 0 | + | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Fetal. | | | | Art. + | | | | | Red. int. | | | | | | | | |
| 0 | 0 | + | 0 | 0 | 0 | + | 0 | + | 0 | 0 | ++ | 0 | 0 | ..... | 0 | 0 | ..... | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | 0 | ++ | 0 | 0 | ..... | 0 | 0 | 0 | 0 | 0 |
| + | + | ++ | + | 0 | 0 | + | + | ++ | + | + | +++ | + | ++ | 0 | ++ | ++ | + | 0 | 0 |
| 0 | + | + | 0 | 0 | 0 | + | 0 | ++ | 0 | 0 | +++ | 0 | + | + | + | 0 | + | 0 | 0 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 | 0 | Sick. | 0 | 0 | 0 | | | | | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 0 | 0 | 0 | Sick. | 0 | 0 | + | | | | | |

before and after exercise. Darling and others have shown that albumin and casts appear very often in the urine of young healthy adults after severe exercise. But some of our specimens showed albumin and casts before exercise and others showed a considerable amount of albumin and a great many casts after exercise. Such cases are evidently on the border-line between health and disease, if not beyond it, and merit careful supervision and individualization. Nor do we propose to dilate on the type of physical examination or functional test. A mile run is obviously too severe a strain for some boys, but, if so, these boys should not be allowed to compete in hard contests. From the results of the tests we made it is evident that many of the boys require as much careful supervision over their athletics as they do over their lessons.

It is an important question to determine the advisability of so much devotion to athletics among school boys; but it is within the range of this paper only to urge proper medical supervision over a part of the schoolboy's life, which in his eyes at least is quite as important as his studies. Colleges foster the spirit of competitive games; newspapers dilate on them; the age demands athletic development in the youth; but a growing boy, crowded hard at his lessons so as to pass his college examinations, may not be able to withstand repeated and continued athletic training.

48 West Fifty-first Street.

### ABSTRACT OF DISCUSSION

DR. DE LANCEY ROCHESTER, Buffalo, N. Y.: I was much interested in Dr. Potter's paper, because of the occurrence of three cases of serious heart trouble which developed in boys under my observation who were engaged in school athletics. A point not brought out in the paper was the evil occasionally resulting from jumping. I have seen one case of flatfoot from this. I think one of the most serious things in athletic contests is the fact that they are contests. Games in schools are very good for the children; but I think that competition, which enters so largely into these contests, makes the boys overdo it to a great extent. Moreover, athletics are now appearing in the lower grades of schools, and I have now under observation two boys, 8 years of age, who have been injured by these athletic contests in school. These children are encouraged by their masters, and I believe there is great danger of the masters encouraging the boys too much, urging them on in these athletic contests to the physical injury of the boys.

DR. RICHARD C. CABOT, Boston: Dr. Potter's paper backs up the conclusions reached by Dr. Darling of Cambridge in his observations on certain athletes, such as football players. An interesting point which Dr. Darling emphasized is that in fatigue we get conditions, not exactly healthy or exactly diseased, according to ordinary conceptions. He found in fatigue states not only a marked leucocytosis, but abnormal forms of leucocytes, such as are not to be discovered at all in health. Yet all these things apparently work no permanent harm to the individual. In one of Dr. Darling's cases (after a boat race) anyone would have said that the urine showed an acute nephritis; there was present a large amount of albumin, blood and many casts. Yet within a few days the urine was normal again. To me an interesting point is that from mere fatigue such changes can be produced in the heart, the blood and the kidneys. I should like to ask Dr. Potter the reason for this "reversed blood pressure." Why was it greater in the horizontal than in the upright position?

DR. STANLEY P. BLACK, Pasadena, Cal.: I should like to know how many of these athletes develop endocarditis, a severe endocarditis. I am afraid that we are developing heart troubles in the children. A child of 8 years is now taught to run one mile. I have seen young children run until they fall from exhaustion, unconscious on the track. I think it is an outrage that such is allowed, and the medical profession should enter a protest against the manner athletics is often carried on.

DR. NATHANIEL BOWDITCH POTTER, New York: We attempted to estimate the blood pressure in the horizontal and in the upright position, because Dr. Meylan, in examining students at Columbia University, found that students whose vertical pressure was lower than the horizontal pressure needed careful watching. In our observations we hoped to find something definite from the test, but I can not say that we did. Many of the boys showed rather excessive fatigue after the race, presented a greater amount of albumin and a larger number of casts, or showed an abnormal heart's action, and some of these boys exhibited a reverse pressure which most of the others did not. In one of the schools where I examined six boys before and after a quarter-mile run, one boy exhibited a marked cardiac enlargement and a reverse blood pressure. Six years before, while at home on his vacation, Dr. Favill of Chicago asked Dr. Billings to examine the boy's heart. The boy had a dilated heart.

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## THE USES AND LIMITATIONS OF EXAMINATIONS OF THE STOMACH CONTENTS *

CHARLES G. STOCKTON, M.D.
BUFFALO, N. Y.

The stomach-tube should not be too small; for an adult it should be from 30 to 35 French scale. It should not be too flexible; it should support its own weight held in the upright position for the length of twelve inches without bending. It should have the largest caliber possible without making it liable to bend sharply at an angle when pressed on. A good deal depends on the quality of the rubber; much depends on the character of the tube. It should have no pumping apparatus connected with it and it should be about 54 inches long.

On the introduction of the tube it is occasionally grasped by the esophagus about 8 or 10 inches from the teeth. If this delay is temporary, it depends on spasm, and one may expect to find either cardiospasmus or stricture at the cardia.

Finding portions of the test meal returned when the tube has passed about 14 inches, the food being unmixed with gastric juice, is evidence of obstruction of some kind at the cardia, the retention of food in the esophagus and probably dilatation of the latter.

If in pressing the tube onward it stops at the cardia or, engaging in a spasmodic contraction, is held fast, we may infer the existence of stricture or spasm at the end of the esophagus.

On passing the tube into the stomach we usually obtain the best reflow at a distance of from 21 to 22 inches from the teeth, provided the patient is an adult of ordinary stature, having the stomach in position and of normal size.

Where the stomach is high this result may be obtained at 18 inches. In a very tall person the tube may have to be passed 24 inches or beyond, even when the stomach is in a normal position.

When the tube is passed 20 to 22 inches we may find stomach contents; and on aspirating this, the tube being pressed further on, after a little resistance, it apparently gets into a second cavity from which stomach contents of different character is removed. This indicates an hour-glass stomach or a spasmodic contraction of the stomach between the second and the last third of the organ; in other words, at the antrum pylori.

When, after passing the tube the usual distance, we find present an unusually large amount of the test meal at the proper time, it indicates moderate motor insuffi-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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ciency of the stomach which may depend on atony or on some opposition at the pylorus.

If we find a large quantity of the test meal present undergoing fermentation, having a "musty" odor, showing a large quantity of bacteria and sarcinæ and full secretion of hydrochloric acid, with few lactic acid bacilli, it is indicative of benign obstruction at the pylorus.

If we find stagnating food of foul odor, either with or without free hydrochloric acid, with lactic acid present, together with the Oppler-Boas bacilli and unchanged or occult blood, it suggests malignancy and obstruction.

The presence of too little of the test meal at the usual time with, however, the presence of gastric juice, suggests overmotor activity.

When we find the stomach empty or find present too little of the test meal and no gastric juice, it indicates excessive motor activity, probably associated with achylia gastrica (frequently present in pernicious anemia).

A conclusion should not be reached by a single examination. On one day there may be found the absence of gastric secretion and on the next an excess of it. On one day the food may be retained beyond the usual time and on another it may have passed onward too quickly. From this we conclude that the patient is the subject of nervous disturbance, perhaps excited by the very practice of lavage.

When we find habitually an acidity above 60, depending on hydrochloric acid, free or combined, the presence of hyperchlorhydria is suggested.

Hyperchlorhydria, however, is not to be determined by a given standard. The secretions of the stomach are seldom stable and should not be fixed by positive laws. A secretion normal with one person is excessive with another. In other words, some patients suffer from the symptoms of hyperchlorhydria when the secretion is decidedly below the standard. Such patients may be victims of gastric hyperesthesia.

There are cases of practical suspension of the gastric secretory function with symptoms similar to those of hyperchlorhydria; these are probably instances of chronic glandular gastritis with exacerbations accompanied by symptoms of irritation.

Overacidity, with delay in digestion of starch, is indicative of hyperchlorhydria.

A high total acidity, depending mostly on free hydrochloric acid, suggests a defect in secretion of enzymes.

A high total acidity, depending largely on combined chlorids, suggests an active secretion of the enzymes.

The presence of mucus in excess should always attract attention. Large quantities of glairy, ropy mucus, unmixed with the test meal, indicates esophageal mucus which has entered the stomach through the irritation occasioned by the passing of the tube. It often occurs when the tube has been introduced in a clumsy manner. It is not indicative of gastritis.

Finding a mass of nummular sputa, often accompanied by pus and by epithelium from the respiratory tract, indicates that the mucus has been swallowed and is not of stomach origin.

When mucus is found thoroughly intermixed with the test meal, usually not glairy or ropy, it probably comes from the gastric mucosa, and is indicative of catarrhal gastritis.

The presence of occult blood, or blood cells having undergone change by digestion, is evidence that hemorrhage has taken place in the stomach with active secretion such as occurs in ulcer.

If the blood cells are found intact it speaks for recent hemorrhage or lack of digestive power, or both.

The presence of blood with mucus and pus cells, apparently not coming from the respiratory passages, with fragments of tissue, suggests ulceration or degeneration of the gastric mucosa and probably malignancy.

A slow return of the gastric contents through the tube, showing little pressure from below, is indicative of atony and probably of dilatation.

Finding food remaining after washing for a considerable time is evidence of atony and probably dilatation.

Finding that the stomach holds, without inconvenience, a large quantity of fluid is indicative of dilatation; however, testing the capacity of the organ in this manner is a practice not recommended.

On the other hand, if the stomach contents return through the tube with some force, it indicates a strong motor activity or a stomach greatly overdistended with contents—certainly a high pressure. (Under such circumstances we should attempt to rule out the elements of strong contraction of the abdominal muscles.)

A forcible return may occur in dilatation provided there is hypertrophy of the muscle walls as a result of pyloric stenosis.

Violent or spasmodic spurts, coming from the stomach-tube, result from sudden contraction of the abdominal muscles and a suddenly increased intra-abdominal pressure.

When bile is found in the stomach contents it probably depends on relaxation of the pylorus with upward pressure of the duodenal contents through contraction of the abdominal muscles, or reverse peristalsis.

When the proximal end of the tube is held beneath water and bubbles of gas escape through it, it is indicative of an excess of gas in the stomach.

When no gas escapes from the stomach, even though the patient complains of continuous eructations, it may be argued that the gas is not formed in the stomach by fermentation, but that we are dealing with a hysterical condition.

The slow change of albumin, especially of meat fibers, shows that the gastric digestion is retarded.

The presence of the odor of fatty acids, of a "musty" or vinous odor, is evidence of fermentation.

Too much importance should not be attributed in stomach examinations to the disturbances in secretion.

The greatest importance should be attributed to evidence of disturbances in motion.

The diagnosis of stomach diseases should not be made solely by examination of the gastric contents, but by the results of this method considered in connection with the symptomatology and with the estimation of all the facts in the case.

Wrong conceptions will arise from basing a diagnosis on stomach examinations alone, or on too infrequent examinations; or on examinations conducted without rules and without thought.

The stomach-tube is of the greatest importance in the matter of diagnosis; in treatment it is often useless and sometimes pernicious. Nevertheless it is at times a therapeutic agent of great efficiency and cannot be replaced by any other measure in poisoning cases, gastrectasia, before operation in obstruction, in some cases of intractable vomiting, in catarrhal gastritis and, in general, for the relief of an irritable gastric mucosa.

It should be much more generally employed than it is as a routine in general examinations, but, as in other physical methods of examination, the results will depend on the expertness and thoughtfulness of the examiner.

436 Franklin Street.

# X-RAY EVIDENCE IN GASTRIC CANCER*

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The treatment of cancer of the stomach rests in the hands of the surgeon, but the diagnosis rests in the brain of the physician. He is the first to see the case. If he fails to make an early diagnosis the surgeon can give no hope. And yet early diagnosis is often impossible even with the advantages of experience and the laboratory. For these reasons I hope to interest the internists of this Section in a comparatively new factor in the early diagnosis of cancer of the stomach. This factor is the *x*-ray plate.

The use of the *x*-ray in diseases of the alimentary tube depends on the fact that the inside of the stomach or intestine, when coated with a salt of bismuth, casts its shadow on plate or screen. In such shadows lie the *x*-ray evidence of gastric disease. These skiagraphs are not self-interpreting. A known and constant technic is a condition precedent. In addition to an *x*-ray training we must bring to bear the physical examination of the case, the laboratory findings, the inspection through the incision at operation, and the investigations of the post-mortem. The larger the record of a collective experience of many workers the more exact and comprehensive will be the interpretation of skiagraphs.

This illustrates the fact that we are in the primitive stage of the *x*-ray diagnosis of gastric cancer, and justifies me in assembling the diagnostic factors deducible from the *x*-ray image of the inner wall of the stomach, so as to consider those attributable to cancer.

The diagnostic factors presented are:

1. Size.
2. Form.
3. Position.
4. Clearance.
5. Location of pain-marker.

The size of the stomach must be judged by the size of the patient. The form of the stomach, which is subject to change without notice, may nevertheless clearly be designated as:

1. Normal stomach.
2. Tubular stomach.
3. Globular stomach.
4. Drain-trap stomach.
5. Deformed stomach.
   - a. Indentation stomach.
     - (1) From spleen or other adjacent organ.
     - (2) From tumor in stomach wall.
     - (3) From tumor outside stomach.
   - b. Adherent stomach.
   - c. Contractured stomach.
     - (1) Forming pucker in body of stomach.
     - (2) Forming hour-glass contraction.
     - (3) Forming partial or complete stenosis at pylorus.

The position of the stomach may be normal, or may be displaced as a whole, or may suffer a displacement of certain parts, namely, the fundus, the greater curvature and the pylorus with its antrum.

If the center of pain, or of tenderness on pressure, be marked by a lead letter (P) fastened to the skin by adhesive plaster, we may find the demonstration of this displacement of the stomach or its parts, with reference to the lead letter as depicted on the *x*-ray plate, to be a matter of decisive importance. The stomach or its parts may extend to unexpected places. The lead marker, which we thought lay over the appendix, we may find to coincide with the pylorus; or, again, the lead marker, which we thought lay over the stomach, may lie over the pancreatic area, the stomach having prolapsed out of the way. Incidental to a stomach examination we may demonstrate the lead marker of pain or tenderness to coincide with the duodenum or some other portion of the small intestines, some part of the colon, or the spleen, liver, gall bladder, kidney, ureter or urinary bladder. But the position of the lead marker must not be implicitly relied on to localize the lesion. For example, a circumscribed abdominal pain may be due to a Pott's disease of the spine high up in the dorsal vertebræ, beyond the field of the stomach plate.

Our fourth factor, the clearance of the stomach or its power to empty its contents, depends on:

1. Position of greater curvature.
2. Position of pylorus.
3. Pyloric stenosis.
4. Pyloric insufficiency.
5. Hour-glass constriction.

An analysis of these diagnostic factors presented by stomach skiagraph shows that three out of five major factors may give information concerning gastric cancer. They are:

1. Form.
2. Location of lead marker.
3. Stomach clearance.

In the case of cancer the alterations of form are those of the indentation or contractured type of the deformed stomach. In the case of ulcer the alteration is confined to the contractured type. The indentation stomach is therefore the type distinctive of cancer. A benign growth would have to be excluded on other grounds.

The factor of stomach clearance is observed in the last plate. If bismuth remains an unusual time in the stomach, there may be a pyloric narrowing or an hour-glass contraction due to the scars of old sores or to indentations. Lastly, if the lead marker lies over a certain portion of the stomach and the case history shows the location of pain or tenderness to be constant, then we may add this fact to the other clinical data favoring cancer. By the same reasoning, if the marker lies over the duodenum we may suspect duodenal ulcer.

But the *x*-ray diagnostician must never judge a case from *x*-ray signs alone. He must possess himself of the entire clinical and laboratory records. The *x*-ray amplifies but does not supersede other means of diagnosis, although it often happens that the skiagraph supplies the missing premise of a diagnostic syllogism.

The problem of differential diagnosis may require a careful consideration of all available evidence in the case. When we find a deformed gastric outline we have to discriminate between an indentation from the pressure of other organs or growths; a local contraction of the stomach wall; an invasion of the stomach wall by a growth; and the presence of adhesions due to disease of contiguous organs. Also when we find low clearance and a globular form, and establish the fact of pyloric narrowing, we then have to discriminate between narrowing due to the scar tissue of ulcer; that due to growths in the walls of the antrum or pylorus; that due to pressure of growths or glands outside of the pylorus; and that due to binding of adhesions.

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In order to make these discriminations we must study the stomach under normal conditions so as to be able to recognize a departure from normal outlines. The normal stomach is more vertical than horizontal and lies above the plane of the umbilicus. Laterally, the axis of the stomach is oblique to that of the trunk, the fundus lying to the back and the pylorus to the front, so that when the patient is placed horizontally on his back the stomach contents gravitate to the fundus and, when placed on his abdomen, to the pylorus. The fundus is in contact with the diaphragm above, the left lobe of the liver to the right, and the spleen to the left and back. The main body of the stomach lies posteriorly in contact with the tail of the pancreas, the left kidney and suprarenal. On the left side it lies in contact with the spleen, the splenic flexure of the colon, the transverse colon, and the descending colon. On the right it lies against the vertebral column and the abdominal vessels. The antrum pylori at the back lies against the pancreas, while the whole stomach in front lies against the abdominal wall. The displaced or dilated stomach may lie in contact with any and every organ in the abdominal cavity.

When we consider the contact relations of the stomach we see that a study of the indentations of the stomach walls may in different cases yield information concerning almost every abdominal organ.

Our technic must be adapted to these anatomical conditions. Air or bismuth within the stomach gives certain outlines. In actual practice by the bismuth method we have to do with the combination, since air or gas is always present to some extent. We must consider the following points:

Patient.
1. Position of body.
2. Degree of stomach distention
3. Contents of stomach.
4. Immobility.

Bismuth.
1. Kind of salt.
2. Quality.
3. How suspended.
4. How taken.
5. How distributed.

Time of day for exposure of plates.
1. Relation to meals.
2. Time elapsing between ingestion of bismuth and exposure of plate.
3. Number of plates and time between.

The patient may be in any position, but the best skiagraphs will be obtained by placing the patient horizontally, front down, on the plate.

Only by the horizontal position can we prevent the bismuth by its weight from deforming the true gastric outline. The preservation of the true gastric outline also depends on the degree of stomach distention and the nature of the stomach contents. The stomach should be empty to begin with and the distribution of bismuth should be such as to reveal most surely any indentations, contractures, or adhesions. This part of the technic must be an approximation because we can only approximate the size of the stomach preceding our *x*-ray plate.

Immobility of the patient may be obtained by having the breath held. Practical immobility of the stomach may be obtained by sufficiently rapid exposure, or by morphin. Morphin, however, destroys to a large extent the value of the second and third plates by interfering with the factor of stomach clearance and the intestinal distribution of the bismuth.

Nearly all of my stomach work since 1905, until two months ago, has been done with bismuth subnitrate. With the exposure of the final plate I have always given a full dose of Epsom salts. An average of three cases in a hundred, however, have shown some slight toxic symptoms consisting of faintness, cyanosis, slight pains and stiffness of the legs from ten to twenty-four hours after. With the Epsom salts following, I believe that bismuth subnitrate may be safely used. The subcarbonate, however, first suggested to me by Dr. Pfahler, gives equally good skiagraphs, and is free from the possibility of the decomposition of the nitrate radicle with the formation of poisonous nitrites.

The method of mixing the bismuth with some kind of foodstuff so as to fill the stomach does not meet our diagnostic requirements. The aim is not to fill the stomach, but to coat its walls; not to show a large bolus of food and bismuth, but to define stomach outlines. To this end the bismuth should be introduced into the stomach in the thinnest menstruum that can be swallowed. This is plain water.

The quantity of bismuth needed is, according to the size of the patient, from 40 to 100 gms. in from 250 to [illegible] c.c. of water. This is immediately distributed over the rough and furrowed mucosa of the stomach by placing the patient in the horizontal position, back down, on a swivel surgical chair or table, which is then tipped into the Trendelenburg position, head lowered, feet up. We may then slowly rotate the chair while the bismuth is settling upon the stomach lining, where it will be retained for a time which is more than ample for skiagraphic purposes. The patient is then directed to turn over via the left side, face down, without rising out of the horizontal, after which the chair is again tipped, head down, and rotated as before. From three to five minutes are sufficient for these maneuvers. The patient, now in the horizontal position, face down, arches the abdomen to allow a plate to be placed beneath. He then lies on the plate, care being taken to bring the arms forward so that the weight of the body is not supported by the elbows. A 14 by 17 plate should be placed so that the forward edge is on a line with the nipples. The tube should then be fixed, not closer than 50 cm. (or about 20 inches), over the center of the plate. The radial axis is then always in the center of the plate and need not be marked by plumb, as in my earlier plates.

If the preparations have been complete, including the previous fixing of a lead U in the umbilicus and a lead P over the center of the area of pain or tenderness, if such exist, then we shall be ready to turn on the *x*-ray in from five to fifteen minutes after giving the bismuth. The patient is directed to take a moderate breath and hold it as long as he can without moving in any way. This allows us from five to thirty seconds, according to the size of the patient, and ensures a serviceable negative in every case. The shorter the time the clearer-cut the negative. But all the time up to thirty seconds may be allowed which the apparatus requires.

The first plate (14 by 17) may be conveniently exposed in the morning after the test breakfast has been withdrawn for analysis. Then, an hour after the first plate, a second plate (10 by 12 or 8 by 10) should be exposed under a compression diaphragm so as to take in any area which the first plate shows as abnormal. If no such abnormality appears, then one should focus over the critical area within which lie the antrum pylori, the pylorus, the duodenum, the head of the pancreas and the common duct. Six hours after the first

plate, or the time between two meals, a third plate (14 by 17) should be exposed. This will demonstrate stomach clearance, confirm gastric deformities, and show the intestinal distribution of the bismuth. If the first plate is exposed before dinner the third may be exposed before supper. After the first plate the meals should be eaten as usual.

As to the technic of coil, tube and plate, I would say only that skiagraphy of the alimentary tract by the bismuth method is hard-tissue skiagraphy, the bismuth areas often greatly exceeding the bones in density, as shown by stomach negatives.

The progress of the bismuth is often astonishingly rapid. In five minutes after the bismuth is taken a portion of the duodenum will commonly be coated. In fifteen minutes bismuth may be found in the jejunum, and not infrequently in coils of the ileum. In four hours the stomach may have emptied itself; and in four to six hours, the small intestines, by their vigorous peristalsis, may have passed the bismuth clearly and completely into the colon, where it may be distributed from the cecum to the sigmoid.

These points and each essential condition and factor mentioned in this paper are illustrated by seventy-[illegible] plates placed in observation frames in the Scientific Exhibit. Lack of time prevents me from demonstrating them on this platform. These are the best of several hundred plates taken by myself in the course of a private and consultation practice, and have been carefully labeled and described by typewritten sheets posted on the frames. I have been aided in the interpretation of each plate by my relation of physician to the patient, by a necessary familiarity with the clinical and laboratory findings, and by attendance on most of the cases for subsequent periods. When operation or autopsy has followed, such is indicated on the plate. This exhibit is arranged particularly for medical men who are not *x*-ray experts, because so many medical men, even some of national fame, seem strangely unaware of the possibilities of the *x*-ray plate.

I believe that sufficient stomach work has already been done by numerous *x*-ray operators in various parts of the world to demonstrate the incomparable value of the *x*-ray in cancer of the stomach as well as in a wide range of other affections of the alimentary tube. Medical men should study *x*-ray plates of their cases. It is no exaggeration to say that the *x*-ray plate and screen will give often more and better information than an exploratory operation. This is emphatically true in the case of gastric ulcer, but holds true in the main for gastric carcinoma. Where the diagnosis of malignant disease is not in doubt the *x*-ray should still be used, because few medical or surgical diagnoses are so exact and comprehensive that the skiagraph and screen may not extend or revise our knowledge.

In conclusion, I take pleasure in acknowledging my indebtedness to Dr. C. M. Spencer, my clinical assistant, for his very able service in this work.

420 South Rose Street.

**Teaching of Dermatology.**—T. Caspar Gilchrist, in his presidential address before the American Dermatological Association, states that the teaching of dermatology of to-day and for the future means much harder work than formerly, as the dermatologist must not only convey his knowledge to the student by personal practical teaching, but must also advance the knowledge of our branch of medicine by investigation and experimental work, otherwise his horizon must inevitably grow narrower.—*Journal of Cutaneous Diseases.*

## THE DETERMINATION OF TRYPSIN IN THE STOMACH CONTENTS AFTER OIL TEST MEALS *

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PHILADELPHIA

The experiments reported in the following paper are based on the work of Boldireff and Volhard. The former in experiments on dogs found that the introduction of oil into the stomach caused regurgitation of duodenal contents, in which the presence of pancreatic ferments could be demonstrated; the latter devised a new method for demonstrating the presence of trypsin and applied Boldireff's discovery to clinical uses.

### A. OBJECTS, METHOD AND RESULTS IN GIVING OIL TEST MEALS

My first object was to substantiate the observations of others as to the ease and frequency with which duodenal contents might be obtained after the oil meal.

The second was to decide which of the methods proposed was best suited for detecting trypsin in the specimens secured.

The third was to discover what, if any, clinical value was to be attached to the findings thus obtained.

The oil meal as given, consisted of 100 to 200 c.c. of olive-oil or cottonseed-oil; in most cases this was given through a tube; occasionally the patients preferred to drink the oil. While the tube was in the stomach, before the oil was administered, any contents present were aspirated or washed out. In the case of a large dog, in which repeated attempts to obtain duodenal contents had failed, lavage with sodium bicarbonate solution, as well as the administration of magnesia, was tried without effect. In one-half to one hour, the oil was aspirated. In many cases a few cubic centimeters of whitish mucoid fluid, in addition to a small amount of oil, was all that could be recovered. In other cases a large amount of pale green or dark curdy green fluid, amounting in one case to as much as 250 c.c., was obtained. With this was a supernatant layer of unchanged oil and an intervening zone of soap-like emulsion. The tests were carried out in the separated white or green fluid without previous filtration.

The following is a summary of the oil test meals:

18 oil test meals were obtained from patients.
5 oil test meals were obtained from a large dog.
1 specimen was aspirated from the duodenum of a dog by intubation.
Twenty-four specimens in all were examined.
6 of these were of a light or dark green color.
18 were transparent, milky or in a very few cases brownish.
3 of the green specimens showed the presence of trypsin.
3 of the green specimens showed the absence of trypsin.
4 of the colorless specimens showed the presence of trypsin.
14 of the colorless specimens showed the absence of trypsin.

In addition four Ewald test meals, mostly green in color, were examined; one showed the presence of trypsin.

In practically all cases more or less fluid was obtained; frequently this was nothing more than a small amount of retained or possibly newly secreted gastric juice and mucus. It seemed to me, therefore, that the only criterion as to the character of the juice should be

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* From the William Pepper Laboratory of Clinical Medicine.

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its color, indicating or not indicating the presence of bile, and its response to tests for ferments. A third factor might be the amount obtained. Judged by this standard, only nine out of the above eighteen tests on human beings can be considered successful. This differs widely from the results of a recent writer who was successful in 48 out of 50 cases. This disparity may be accounted for partly by my lack of experience, but more largely, as I shall point out, by his faulty controls. My conclusion, therefore, is that Boldireff's plan is superior to those previously suggested, but is by no means uniformly successful as several writers have intimated.

### B. COMPARATIVE VALUE OF METTE, VOLHARD AND GROSS METHODS OF TESTING FOR TRYPSIN

Of the numerous methods proposed at various times for the estimation of pepsin and trypsin only two or three, which have been used for the purpose under consideration, will be considered. Most of the others are too complicated for clinical use, or else offer no advantages over those here discussed. The Mette method, as I have described it in several previous articles, was employed and needs no minute description, as it is now fully given in the text-books. In using it for trypsin the contents were usually diluted with decinormal sodium carbonate solution, thus affording the most favorable conditions for tryptic digestion. Particles of fibrin were placed in each dish to detect traces of digestion.

The detailed technic of the Volhard method may be omitted, but it is necessary to give an outline to explain the principle on which it is based. A strong casein solution of a definite strength and alkalinity is prepared. To a measured portion of this alkaline fluid a definite amount of neutralized duodenal juice is added, and digestion allowed to proceed at 37 C. for twenty-four hours or other fixed period; then a definite but excessive amount of normal hydrochloric acid is added and the precipitation of the casein brought about by sodium sulphate. The amount of precipitate is found to be in inverse ratio to the amount of ferment, and on filtration the acidity of the filtrate, as tested by titration with decinormal sodium hydrate solution, is found to be increased directly in proportion to the amount of ferment. A control is used in each case, the acidity of the control being subtracted from that of the specimen under examination. The exact directions for the preparation of the solution are appended.

The method of Gross, which is very similar to the one simultaneously devised by Fuld, also utilizes casein as the substratum for digestion. A solution of casein, 0.1 per cent., in 0.1 per cent. sodium carbonate solution is prepared and 10 c.c. decanted into each of several test-tubes. The trypsin solution serially diluted is added and the tubes incubated for twenty-four hours. At the end of that time 1 per cent. acetic acid solution is added to each of the tubes and the dilution noted in which cloudiness is still produced. If the casein is completely digested no cloud appears.

The tests were employed first with artificial trypsin or pancreatin solutions and, secondly, with the contents obtained by Boldireff's method. Previous work with the Mette method had convinced me that it was a good, though not delicate, qualitative test of artificial trypsin solutions. In testing duodenal contents, however, I was unable to obtain any positive results. Particles of fibrin were frequently added to the dishes and almost invariably showed digestion in cases in which Volhard was positive. By the Volhard method eighteen specimens obtained from patients or from dogs after the oil meals, as well as several specimens of feces and ordinary stomach contents, were tested. Numerous experiments were also made with artificial solutions. In almost all cases the minutest traces of trypsin were clearly indicated. In a number of instances in testing duodenal contents a marked disparity was noted between a water control as used by Volhard and others, and a control consisting of the boiled specimen to be tested. These differences, as shown in the accompanying tables, were sufficient to counter-balance the low figures obtained in many of the positive results reported by others. I was also unable to obtain any definite quantitative results; occasionally the titration showed acidities closely corresponding in relative amount to the comparative strength of the trypsin solutions employed, but in the majority of instances in which trypsin solutions of varying strength were simultaneously tested, the stronger solutions gave higher results, but the figures bore no definite relation to the concentration of the ferment. In some cases this correspondence in results may have been due to the fact that the weaker solution gave a maximum effect. My conclusion was that the Volhard test had little value as a quantitative method, but was a delicate and reliable qualitative method.

The Gross test seemed to be a delicate one, but, as its inventor states, it is not suited without modification for use in duodenal contents, as bile salts and other constituents give rise to a similar precipitate which is liable to cause confusion.

TABLE 1.—OIL TEST MEALS FROM PATIENTS*

Titrations made with decinormal sodium hydroxid solution. Phenolphthalein used as indicator. Results corrected for acidity of specimens. Temperature of thermostat 37 C.

| | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| 1 (p. 82†). Gastrointestinal neurosis. | Control, Water 10 c.c. | Control, 10 c.c. of boiled specimen. | "Juice" 10 c.c. | "Juice" 5 c.c. Water 5 c.c. | Remarks. |
| Titration | 11.2 | 14.4 | 16.0 | 14.4 | Green color. |
| Less 2 | .... | .... | 14.4 | 14.4 | Time 18 hours. |
| Increase in acidity. | | | 1.6 | 0.0 | Pepsin normal and trypsin absent by Mette. |
| 2 (p. 92). Intestinal indigestion. | Same. | Same. | Same. | Same. | Remarks. |
| Titration | 22.6 | 19.4 | 20.4 | 19.7 | Green color. |
| Less 2 | .... | .... | 19.4 | 19.4 | Time 24? hours. |
| Increase in acidity. | | | 1.0 | 0.3 | Pepsin present and trypsin absent by fibrin test. |
| 3 (p. 64). Cancer of pancreas. | Same. | Omitted. | Same. | Same. | Remarks. |
| Titration | 11.2 | .... | 20.6 | 20.4 | Green color. |
| Less 1 | .... | .... | 11.2 | 11.2 | Time 16 hours. |
| Increase in acidity. | | | 9.4 | 9.2 | Control faulty. |
| 4 (p. 72). Gastric ulcer. | Same. | Same as 1. | Same. | Same. | Remarks. |
| Titration | 8.8 | 15.2 | 32.0 | 32.4 | Green color. |
| Less 2 | .... | .... | 15.2 | 15.2 | Time 8 hours. |
| Increase in acidity. | | | 16.8 | 17.2 | Pepsin normal and trypsin doubtful by Mette. |
| 5 (p. 88). Cancer of stomach. | Same. | Same. | Same. | Same. | Remarks. |
| Titration | 13.8 | 20.0 | 52.8 | 51.8 | Green color. |
| Less 2 | .... | .... | 20.0 | 20.0 | Time 24? hours. |
| Increase in acidity. | | | 32.8 | 31.8 | Temperature of incubator irregular. Pepsin and trypsin absent by Mette test. |

* This table shows a few typical cases. Nos. 1 and 2 may be regarded as negative, No. 3 shows a small amount of trypsin, Nos. 4 and 5 larger amounts. Water is shown not to be a sufficient control.

† The page numbers refer to laboratory note-book.

My inclination in the future would be to use the Mette method and a simplified Volhard test in a purely qualitative way to control each other. I would use mensuration in the former and titration in the latter only when the results were doubtful.

The accompanying examples (Tables 1, 2 and 3) from my note-book have been arranged in tabular form to illustrate (1) the details of the dilutions and calculations, as well as (2) the results obtained by different methods and by the use of natural and artificial trypsin solutions.

TABLE 2.—Comparative Tests by Three Methods, Using Commercial Pancreatin (Wyeth's) as Digestant

Solution and dilutions made with 0.1 per cent. sodium carbonate solution.

| | 1 Sod. carb. | 2 Pancreatin. | 3 Same | 4 Same | 5 Same | 6 Same |
|---|---|---|---|---|---|---|
| Volhard, 10 c.c. in each. | 0.1% | 1.0% | 0.5% | 0.1% | 0.05% | 0.01% |
| Titration | 18.0 | 71.2 | 72.0 | 63.0 | 57.0 | 28.6 |
| Less 1 | | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Decrease in acidity. | | 53.2 | 54.0 | 45.0 | 39.0 | 10.6 |
| Gmoss 1 c.c. in 10 c.c. of casein solution. | | | | | | |
| After addition of 1% acetic. | Milky cloud. | No cloud. | No cloud. | No cloud. | No cloud. | Faint cloud in 0.005% distinct cloud. |
| Mette and fibrin. 5 c.c. | | | | | | |
| Mette tubes fibrin flakes. | Trace Dissolved. | Trace Dissolved. | Faint Trace Partially? dissolved. | Faint Trace Neg. | Neg. Neg. | Neg. Neg. |

TABLE 3.—Merck's Trypsin 1 per Cent Tested by Volhard's Method*

| | 10 c.c. Water. | 10 c.c. Solution. | 10 c.c. Solution. | 5 c.c. S. 5 c.c. W. |
|---|---|---|---|---|
| Titration | 17.6 | 63.2 | 66.4 | 68.0 |
| Less 1 | .... | 17.6 | 17.6 | 17.6 |
| Decrease in acid. Time 3 hours. | .... | 46.6 | 48.8 | 50.4 |

Let us now pass to the clinical side of the question. My cases are too few in number to be of much value, so that after a brief outline of my results, I shall review the valuable or suggestive findings of others. As stated above, I have excluded from consideration all cases in which neither bile nor trypsin was present. This unfortunately limits the usefulness of the test, but seems to be unavoidable.

In four cases some affection of the pancreas was present or suspected.

Case 1.—In the first patient, the diagnosis of cancer of the pancreas was made at operation. Previous to operation 50 c.c. of green fluid had been obtained after an oil test meal. Volhard's test gave an increase in acidity of 9.4. Unfortunately water only was used as a control. Trypsin was probably diminished in amount or possibly absent.

Case 2.—The second case was one of cancer of the prostate with secondary growths. After an oil test meal, 3 c.c. of white fluid were obtained. The fibrin test for trypsin was positive; the Mette test was negative. At autopsy a secondary growth was found in the pancreas with necrosis of the tail of that organ and subdiaphragmatic abscess.

Case 3.—The third case presented indefinite intestinal symptoms which were said to have been relieved by pancreatin. The case was considered to be a gastrointestinal neurosis. Two oil test meals were examined, one specimen was white and gave a low positive result by Volhard (7.0); the other was green and contained no trypsin. The latter result seemed to be the more trustworthy.

* Many similar tests were made which agreed substantially with those given above.

Case 4.—The fourth case was referred to Dr. Edsall as a probable case of pancreatic disease, but he could not confirm this opinion. His diagnosis was intestinal indigestion. After an oil test meal 45 c.c. of greenish fluid was aspirated which proved to be free from trypsin by Volhard's test. In these four cases the method seemed not only to give no assistance in the diagnosis, but even to be more or less inconsistent with the clinical findings.

Cases 5 and 6.—In two cases of cancer of the stomach, strongly positive results were obtained by the Volhard test; in the first 32.8, in the second 29.7. In neither case was there any pyloric obstruction since in one the orifices were not involved, while in the other a partial gastrectomy had been performed. It has been suggested that there is a vicarious digestion in the stomach by means of trypsin in cases of impaired digestion. Strange to say, however, there was no reduction of the gastric activity in either of these cases.

The three remaining cases show nothing of interest and may be given in Table 4.

TABLE 4.—Oil Test Meal and Volhard's Test in Three Cases

| Case. | Diag. | Quantity. | Color. | Volhard reading. |
|---|---|---|---|---|
| 7 | Chronic gastritis, with anacidity. | Small amt. | White. | 4.0 (control water). |
| 8 | Hyperacid gastritis. | 60 c.c. | Clear green. | 0.0 |
| 9 | Gastric ulcer. | 250 c.c. | Green. | 16.8 |

Oil juice was found active by Volhard in 9 out of 11, by Faubel in 23 out of 37, by Lewinski in 19 out of 27, by Molnár in 48 out of 50 cases. Boldireff, in a dog, was able to demonstrate the presence of trypsin before tying, and its absence after tying the pancreatic duct. Hemmeter and Lewinski found trypsin absent in the duodenal contents in cases of obstruction of the bile duct due to stone. Volhard, in a case of pancreatic diabetes, was able to verify the diagnosis of atrophy of the pancreas. He also found trypsin in two cases and was thus able to exclude pancreatic disease, which had been suspected. In 22 cases of achylia he missed trypsin only once. He found the same to be true of subacidity, and believes that this offers a plausible explanation of the good peptonization observed in these cases.

## CONCLUSIONS

1. The duodenal contents may frequently be obtained after the oil test meal, though sometimes there is doubt as to the character of the fluid aspirated.

2. On this account it may be possible to exclude atrophy of the pancreas, but only under very unusual conditions can we demonstrate its presence. In a number of diseases the examination has yielded suggestive results.

3. The observation of Boldireff is of more interest from the point of view of pathologic physiology than of diagnosis, for example, in gastric ulcer and in achylia.

4. The casein method of Volhard is a delicate qualitative test for trypsin, but for this purpose needs simplification.

5. The regurgitation of the alkaline intestinal juice induced by oil may explain the therapeutic value of the latter in some cases of hyperacidity.

Finally, I desire to express my thanks to Dr. Robert G. Torrey for aid in performing the tests.

## REVIEW OF LITERATURE

Boas: Centralbl. f. klin. Med., 1889, No. 6, x, 97; Ztschr. f. klin Med., 1890, xvii, 155.
Tschlenoff: Cor.-Bl. f. schwerz. Aerzte, 1889, No. 6, xix, 161.

Boas described the first systematic method for obtaining the duodenal contents. His plan was to massage the abdomen in the region of the gall-bladder and left lobe of the liver and

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afterward to aspirate any fluid that might have been forced into the stomach. In about fifty cases he obtained active intestinal juice in which he was able to demonstrate amylolytic, lipolytic and proteolytic ferments. He states that the tryptic action of the pancreatic secretion in weak acid or alkaline solutions is the only decisive test. He gives a complete description of the duodenal contents, which holds good for the fluid obtained by the oil method.

Tschlenoff was able to obtain intestinal juice in five out of seven patients by the Boas method.

Hemmeter: Arch. f. Verdauungskr., ii, 85.
Kuhn: München. med. Wchnschr., 1896, No. 29, p. 674.

Hemmeter asserted that he was the first to introduce a methodical procedure for obtaining the duodenal contents by intubation of the duodenum. Kuhn's instrument is much simpler and better than Hemmeter's but either one requires too much technical skill to admit of its general use in clinical diagnosis.

Einhorn: New York Med. Jour., 1908, No. 25, lxxxvii, 1179.

Einhorn has modified his "bucket" for the purpose of obtaining the contents of the duodenum for examination.

Goldschmidt: Deutsch. med. Wchnschr., 1909, No. 12, xxxv, 522.
Gross: Ibid, 1909, No. 16, xxxv, 706.

Goldschmidt and Gross, using the latter's method for detecting trypsin, have recently discovered this ferment in the feces of all normal persons examined. This does not agree with the observations of previous writers, but if confirmed will render the use of oil test meals quite superfluous.

Boldireff: Zentralbl. f. Physiol., 1904, No. 15, xviii, 457; Centralbl. f. Physiol. u. Path. d. Stoffwechs., 1908, No. 6, viii; Arch. f. d. ges. Physiol., 1907, Part 1, cxxi, 13.

The following is a condensation of Boldireff's most important conclusions. After fatty food, in cases of excessive acidity, and after long-continued fasting, a mixture of the pancreatic, intestinal and hepatic secretions pours into the stomach. This fact is utilized to obtain pancreatic juice and bile for examination, and must also be taken into account in tests to determine the acidity, the ferments and the motility of the stomach. Boldireff believes that when fatty food is taken gastric digestion is carried on largely by the ferments of the pancreas. He also states that none of the hypotheses which have been proposed to explain the fact that the stomach does not digest itself take the reflux of pancreatic juice into account. He thus hints at a new theory for the explanation of gastric ulcer. Hyperacidity does not increase the peptic power of pepsin but does favor regurgitation of pancreatic ferments.

Volhard: München. med. Wchnschr., 1907, No. 9, liv, 403.
Faubel: Beitr. z. chem. Physiol. u. Path. (Hoffmeister), 1907, x, 35.
Löhlein: Beitr. z. chem. Physiol. u. Path. (Hoffmeister), 1906, vii, 120.
Molnár: Ztschr. f. klin. Med., 1909, Parts 1-3, lxvii, 188.

Volhard was the first to employ Boldireff's plan for clinical purposes. For testing the "oil juice" he modified his pepsin method. The casein solution required is prepared as follows:

One hundred gm. of finely granular casein are added to 1 liter of distilled water treated with 80 c.c. of normal sodium hydroxid and made up to 2,000 c.c. with chloroform water. The mixture is slowly warmed on the water bath, with frequent shaking, till all the casein is dissolved, and then quickly raised to 85 or 90 C. to destroy bacteria and ferments. After cooling, a layer of toluol is added to prevent access of bacteria.

An individual test is carried out as follows:

One hundred c.c. of casein solution are placed in a flask marked at 300 and 400 c.c.; chloroform water is added to the mark 300 and then an accurately measured amount of trypsin solution (5 or 10 c.c.) previously neutralized. (The acidity may, however, be noted in advance and the necessary corrections made after the final titration.)

Control flasks are prepared in a similar manner, distilled water taking the place of trypsin solution. After incubation for a definite period of time, 11 c.c. of normal hydrochloric acid is added to each flask and then complete precipitation brought about by filling the flasks to the 400 c.c. mark with 20 per cent. sodium sulphate solution. After complete filtration 200 c.c. of the filtrate from each flask is titrated with decinormal sodium hydroxid solution, using phenolphthalein as an indicator. The acidity of the control is subtracted from that of the ferment containing solutions. In my tests the only modification of this method was in the use of a different preparation of casein from that recommended by Volhard (not obtainable in this country) and in the use of half the quantities recommended by him (Merck's Casein [Hammarsten] was used). My results were multiplied by two so as to compare with the results of other writers. Volhard and his followers found that trypsin as tested by this method did not follow the Schütz-Borrisow law.

Gross: Arch. f. exper. Path. u. Pharmakol., 1907, Parts 1-2, lviii, 157.
Lewinski: Deutsch. med. Wchnschr., 1908, No. 37, xxxiv.

Lewinski used the oil method in 27 cases, using the Gross test to detect the presence of trypsin. At first he was unable to obtain trypsin in hyperacidity cases, but afterward by giving half a teaspoonful of magnesia before the oil and again in twenty minutes, he was uniformly successful. He thinks that failure to obtain active juice shows pancreatic insufficiency or mechanical interference with the passage of the pancreatic secretion into the stomach.

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## ABSTRACT OF DISCUSSION

### ON PAPERS OF DRS. STOCKTON, CRANE AND FARR

DR. G. E. PFAHLER, Philadelphia: We know so little that is definite in the diagnosis of cancer of the stomach that everything in advance in this line must be welcomed by all. If the members of the section will examine the plates which Dr. Crane has so carefully prepared, and which may be seen in the scientific exhibit, they will be convinced that the *x*-ray is not an illusion, but gives evidences of cancer. I have seen 35 cases of carcinoma of the stomach; some came to autopsy, while in the others the patients came to operation. In the majority there was no palpable tumor present. In the cases in which there was a palpable tumor it had to be differentiated from tumors of some other part of the intestinal tract. Very valuable evidence is given in this line by the *x*-ray. I think that the sooner the medical man gets in mind the actual and true position of the normal stomach, and forgets what has been considered as classical, the sooner will we enter lines of progress. It is hard to convince a man who is not familiar with the *x*-ray of its value in these cases. As a matter of fact, only one-half the evidence is obtained by the *x*-ray plate; the other half is obtained on the flouroscopic screen. Movements, such as the peristaltic movements, are not revealed on the plates, and I think these form the basis of a positive diagnosis, an early diagnosis. A little induration in the stomach walls, especially if occupying the lesser or greater curvature, causes a change in the wave, but this evidence cannot be obtained on the plate. Of course, a study of the plate by an experienced man is important.

I believe that unless we apply the pain-marker over the seat of pain and move the stomach, to determine that the point of pain moves with the stomach, it is of not much value. I think evidence found at autopsy will bear me out in this.

One must examine these patients in at least two positions, both the vertical and the recumbent. If in the vertical position with proper manipulation, moving the patient sideways, working on either side of the spinal column, will bring out all the evidence that is possible. I have been using bismuth subcarbonate and find it entirely satisfactory. In an examination of 365 patients for conditions affecting the gastrointestinal tract, in whom I used from 2 to 3 ounces of bismuth subcarbonate, I found no toxic symptoms, or a single symptom that could be traced to the use of the bismuth. I think this is a perfectly safe method. The only objections I can see are that too much time and patience are required and, also, one is put to a considerable expense. But these objections can be overcome.

DR. A. W. CRANE, Kalamazoo, Mich.: One caution occurred to me in drawing conclusions from stomach contents obtained at different levels by the stomach tube. This is illustrated by

one *x*-ray plate in the scientific exhibit on Young's Pier taken with the stomach tube in place in the stomach. It may there be seen that the cardiac orifice is on the side and not on top of the stomach. This orifice passes into the stomach toward the upper part of the great curvature. In many cases the end of the tube stops there, as shown by the skiagraph. If a further introduction of the tube is attempted the tube bends; the point does not descend. This is true in a certain proportion of the cases. In this particular plate it is determined beyond a doubt. In many cases in which the stomach contains but little, the contents can be obtained by placing the patient on his back in nearly a horizontal position; then the stomach contents flow upward to the fundus and can be easily drawn off with the tube. Again, in the so-called hour-glass stomachs, when there is a constriction between the upper and lower sacs, the opening is generally too small to permit the passage of the tube. In these cases the stomach contents are obtained from the upper sac, and would not differ in any respect from the contents of an esophageal diverticulum. I doubt if any man can tell whether the end of the tube is in the upper sac of an hour-glass stomach in which the constriction is high up, or in a diverticulum. The attempted diagnosis of such conditions with a stomach tube is open to serious objections. The *x*-ray plate is necessary.

DR. JUDSON DALAND, Philadelphia: During the past three years I have seen a number of cases of gastric tumors studied by *x*-ray, and it seems to me from the experience gained that so far as gastric carcinoma is concerned the entire work is in its very beginning. At the same time, we must acknowledge that the *x*-ray does aid us materially and in many directions. Often it makes clear the position of the tumor, whether gastric or not. It seems to me that it is especially important to be able to determine the peristaltic waves, if they can be plainly and distinctly seen. I believe that the fluoroscope has a value of more than one-half that of the skiagram. By the use of the screen one obtains, on the whole, more information than can be obtained by the skiagram. However, both methods must be employed. The use of bismuth in *x*-ray work is a welcome addition to diagnosis, and all the work that is to be done should be done with as much enthusiasm as has been shown in the past. By paying more attention to the work more definite signs than we now possess will be brought out. We need much more *x*-ray evidence than we now possess, and we must acknowledge that we have little evidence of carcinoma of the stomach, particularly in the early stages, when a diagnosis is most important. The use of the subnitrate of bismuth in doses of from 2 to 3 ounces for *x*-ray work I have seen give trouble which was of no particular importance; there would probably be a gastrointestinal irritation for two or three days and then it would pass away. Its occurrence was rather unusual and therefore did not constitute a bar to the further use of the *x*-ray. I think the subcarbonate is to be preferred to the subnitrate of bismuth.

DR. ALLEN A. JONES, Buffalo: It is misleading when one attempts to judge the position and size of the stomach by means of the stomach tube; one cannot say that he is dealing with a normal stomach, a stomach in a normal position and of normal size, when the tube is used for this purpose. The contents may come through the stomach tube anywhere from nineteen inches or lower, even to twenty-six inches in normal cases. The contents may be obtained from the fundus or from the pyloric extremity. I was interested in Dr. Crane's statement in regard to hour-glass contraction of the stomach; he found it was impossible to differentiate between the contents obtained from the fundus and that obtained from a diverticulum of the esophagus, from a dilated esophagus, or from a stenosis from any cause. This emphasizes the extreme importance of the pyloric region of the stomach. Unless there is a proper mixture of gastric juice with the food at the pyloric extremity of the stomach, the stomach content does not assume normal characters. One point that Dr. Stockton mentioned was of considerable interest; this was the condition of the emptying function of the stomach with achylia gastrica. Recently considerable interest and significance has been attached to the chemistry in the duodenum and the pyloric closing and opening. It has been taught that, in normal digestion, when the duodenal contents reach an acid point, that is, a certain degree of acidity, a reflex action occurs which results in the closure of the pylorus, and no more contents are allowed to pass on until that which is already present is neutralized and has probably passed down further in the duodenum. If that is true, theoretically the passage of the gastric contents must be much hurried in achylia gastrica. But clinically such is not the case. We frequently find the contents retained in the stomach as long as would obtain in normal digestion. These are the cases in which we are apt to have symptoms of achylia gastrica. Peristalsis is, after all, the most effective measure, or means, of emptying the stomach contents into the duodenum, provided there is no pyloric stenosis and regardless of the fact that there is a low gastric acidity. On the contrary, however, it is in achylia gastrica that many marked cases of pyloric insufficiency and hurried emptying are observed.

DR. JOHN A. LICHTY, Pittsburg: At the risk of being considered a psychiatrist, I wish to call attention to the effect of the mind or nervous system on these patients in whom we think it necessary to use a stomach tube. I believe that in the first days that the stomach tube is used the findings are of very little value, especially if the patient is a nervous one. If you tell the patient that you will pass the stomach tube on him next day he will worry all night about it, wondering how the stomach tube is going to feel. It certainly does have some effect on the digestive secretions, so much so in fact that the findings are of little value. I have also proved this in dogs. In our experiments on dogs we found that the dogs became fond of their keepers and the keepers could pass the stomach tube without any difficulty whatever; in these cases the stomach contents were found to be constant and normal. But one day one of the students asked me to let him go down and assist the janitor. All the dogs then had either diarrhea or vomited. This influence of the nervous system is not more so in dogs than it is in human beings. I wish to emphasize a point that Dr. Jones has mentioned in regard to the use of the *x*-ray, that is, the *x*-ray findings. Unless the stomach tube is passed up toward the pylorus the secretion withdrawn is not going to give a definite idea of the gastric secretion; one cannot always be sure of it. However, if the patient takes the tube nicely and easily, the physician then can rest assured that normal gastric secretion has been obtained. In spite of all this, I doubt whether the findings are always correct and that we can always make a correct interpretation of the findings. In those cases in which we have a definite clinical history we should disregard the gastric findings if they do not agree with the history. One should study the clinical history as much or more than the gastric findings.

DR. HENRY R. HARROWER, Chicago: I believe that there is a possibility of mistake regarding the finding of the Oppler-Boas bacillus which the text-books lead us to believe is pathognomonic of gastric carcinoma. I have been misled in my brief experience by finding them in a number of gastric analyses; they were undoubtedly Oppler-Boas bacilli, but no malignancy was associated with them at all. At least two years have passed in one case, and this patient is not suffering from any gastric disturbance whatever. I have in mind a man who was suffering from some serious stomach disorder which was diagnosed as cancer. He vomited practically everything that passed into the stomach and was dying of starvation. I made a careful examination of the gastric contents and found a large number of what I believe to be Oppler-Boas bacilli. I think these bacilli can be easily recognized after one has seen them a few times. This patient was treated with ordinary digestants and eventually gained seventy pounds; in a year he was perfectly well. The Oppler-Boas bacillus is not pathognomonic of gastric carcinoma and this should be emphasized more, and the statements made in some text-books should be changed.

DR. JOHN N. UPSHUR, Richmond, Va.: I do not think that there is a more interesting subject than the study of stomach troubles. I am satisfied that the best men are sometimes in error as a result of their conclusions the result of analysis of gastric contents. If they could find it possible to be at both ends of the tube at the same time, that is, be the patient as

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well as doctor. I was one of those unfortunate people who had serious stomach trouble. I consulted several stomach specialists, who studied my case carefully. But I found from my own experience that my trouble was a neurasthenic one; it was a dilatation of the stomach of five inches, the result of a deficient motility as the result of a nervous breakdown. Four years later a specialist, who was thoroughly competent, told me that I had no dilatation at all. Now an exceedingly interesting thing to me was the use of the stomach tube. I am sure that I passed the stomach tube on myself at least 2,000 times. For seven years it was impossible for me to have a quiet night and be fit to work on the following day unless I used one gallon of sterilized water before retiring. The interesting feature in my case was that the digestive disturbance always came at the end of the day, when I was tired, mentally and physically. I am satisfied that the benefit, a decided benefit, arose from the use of the tube by causing a stimulation of the stomach with the sterilized water as a massage. The water was used at a temperature that was comfortable. There was an improvement in the motility of the stomach caused by the stimulation of the lavage together with long continued use of strychnin. I have not used the stomach tube for eighteen months and I am now in better physical condition than I have been in ten years and can do as much work as a young man can. What I wish to emphasize is that the best men are apt to make mistakes unless they can put themselves at both ends of the tube at the same time, at one end as the doctor, at the other as the patient; then they can arrive at some definite conclusion.

DR. C. URBAN SMITH, Baltimore: I agree with the statement that the presence of the Boas-Oppler bacillus is not positive of carcinoma of the stomach. From what has been expressed here to-day one would infer that its presence was of positive diagnostic value, but we frequently find the bacillus in benign conditions. There is no doubt but that the Gram-positive finding of the bacillus in the feces is a valuable link in establishing a positive chain of evidence. In regard to the withdrawing of the stomach contents, and the statement that all the contents are rarely obtained by the ordinary methods, I wish to say that I find the expression method which is used largely in Germany is probably the best and simplest method to completely empty the stomach when properly performed, but requires a certain amount of practice and experience.

DR. FRANK SMITHIES, Ann Arbor, Mich.: Dr. Stockton should be praised for the complete résumé that he has given us. It seems to me that a fact not strongly emphasized should be mentioned. In the examination of stomachs the tube is frequently passed without sufficient attention being given to the state of the patient's mouth and teeth. Before the tube is passed it is well to have thorough cleansing of the teeth, mouth and throat. I recently had an experience which strongly impressed this on me. A specimen supposed to be Oppler-Boas bacillus was sent to me. It turned out to be leptothrix from a dirty mouth. I think that greater stress should be laid on frequent examinations of the gastric secretions and contents. Outside of institutions it is common to have a diagnosis offered a patient, based on but one stomach examination. As Dr. Lichty has pointed out, this amounts to but little unless the findings are positive ones, as, for example, the contents showing atypical cells, bacilli, etc., at this examination. With respect to the *x*-ray evidences in the diagnosis of cancer of the stomach, I must frankly admit that "I am from Missouri." From a somewhat careful examination of the plates submitted, I must say that I see little that would lead one to differentiate between early cancer or ulcer. And it must be remembered that it is in the early cases that we are justified in recommending refinements of diagnosis. A study of the abdomen with the aid of a fluoroscope frequently tells us important things respecting gastric and intestinal motility. But I fail to see that the *x*-ray offers any more information or more exact information than one can gain from careful examination with the aid of the stomach tube at appropriate sittings. And it should be emphasized that the stomach tube is always at hand.

DR. ALEXANDER LAMBERT, New York: Has Dr. Crane noticed in the skiagraphs of cancer of the stomach any relation between the pain described by the patient and the tenderness as elicited by the examination? As we know, the abdominal viscera refers pain to the abdominal wall. Has he drawn any conclusions; is there any relationship between the place of pain, as described by the patients, and the seat of the lesion as elicited by *x*-ray examination in cases of gastric carcinoma?

DR. PHILIP KING BROWN, San Francisco: It is not an easy matter to differentiate the Boas-Oppler bacilli, and it cannot be done positively by simple staining methods. There are two definite types of organisms closely resembling the Boas-Oppler bacilli, and found commonly in stomach contents and stool. One is not uniformly positive with the Gram stain and has the same morphology as the colon group; Schmidt calls it the pseudocolon type. The other is very difficult to differentiate from the Boas-Oppler bacillus in stained specimens, except that it is slightly larger and thicker, and appears in long chains in the stool. It is also Gram-positive. What Dr. Smith has said is true; but be certain you are getting the Oppler-Boas bacillus before telling the patient that he has cancer.

DR. CHARLES G. STOCKTON, Buffalo: Hour-glass stomachs are not seen frequently; it is not a common condition. A stomach tube could not pass through such a constriction readily, although I have done it in two cases. I feel convinced that the statements I have made will stand, with some exceptions of course. What Dr. Jones has stated in regard to the distance of the tube is perfectly true. Dr. Lichty's statement regarding the mental impression on the gastric secretions is correct and I am glad that he emphasized it as he did. The conclusions drawn regarding the stomach condition from one or two examinations are often misleading and throw the practice into disrepute. As to the Oppler-Boas bacilli, I think what has been said is true, but it has been said more strongly than I would say it. These bacilli are found in conditions not cancerous, but not in such abundance or regularity that I imagine one would believe from hearing what has been said. They are not at all pathognomonic of cancer. But when they are found in abundance they certainly have a diagnostic bearing, especially when taken in connection with other findings. Their presence does not stand alone and by itself in the diagnosis of cancer; this has never been claimed for them.

DR. A. W. CRANE, Kalamazoo, Mich.: If I gave the impression that the *x*-ray was an infallible means of diagnosticating cancer of the stomach, it was a mistake; it is simply one added factor to the other methods we have. To make plates is comparatively easy, but to interpret them requires understanding and training. To recapitulate briefly, the *x*-ray evidence of cancer of the stomach lies in the deformity of the normal outlines of the stomach. Ulcers or the scars of ulcers give contractures, while cancer gives an indentation of the stomach-wall. These distinctions are illustrated by many plates in the scientific exhibit. I should like to ask that the medical men give more attention to what the *x*-ray men in this country have to show them. They will find something in this method of diagnosis applied to the stomach.

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**The Changes in the Glandular Epithelium of the Uterine Mucosa in the Intermenstrual and Premenstrual Periods.**—Material for the investigation was obtained from fifty-seven normal women whose menses were regular and abundant. The specimens were fixed in Zenker, Flemming and alcohol, and stained with safranin, hematoxylin and eosin, van Gieson and mucicarmin. From his histologic observations, R. Schröder (Inaug. Diss., University of Rostock, 1909), draws the following conclusions: The glandular epithelium of the uterine mucous membrane exhibits, eleven days after the beginning of menstruation, peculiar substances in the protoplasm of the cell, which have no affinity for staining reagents. These first make their appearance in the form of very small globules, which then grow larger and ultimately break through the cell wall and escape into the lumen of the gland. Along with these changes another substance makes its appearance in the glandular epithelium. It is characterized by its marked affinity for hematoxylin, and is first seen at the periphery of the cell. Soon the entire cell is filled and the stainable substance is next found in the lumen. It is thought that the glandular epithelium of the uterus is at all times, or at practically all times, capable of secreting mucus. The above changes, in all probability, represent different stages in the secretion of the peculiar uterine mucus.

# THORACIC SURGERY *

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MARBURG, GERMANY

While fully appreciating the distinction conferred on me by your call to read a paper before this meeting on the present state of thoracic surgery, I realize that the prescribed time limit demands a concise handling of this subject. My assistant, Dr. Sauerbruch, was enabled to tell you last year at Chicago of his own ingenious studies and experiences, so that I can briefly dismiss the details of the method of operating under positive and negative pressure.

The surgery of the lung and the heart, as well as of the mediastinum, the diaphragm and the esophagus, are entitled to the greatest interest and attention, the outcome being governed by the manner of surgical interference. All these fields accordingly become criteria of eminent rank for the quality of our technic.

Surgical intervention on the affections of the lung may be classified under four different headings:

I. Intrapulmonary interference with diseased foci.

II. Influencing of pulmonary affections by way of the pleura, through compression of the lung.

III. Operative procedures on the thoracic wall, for the mechanical influencing of the pulmonary function, thereby reacting on pathologic processes in the lung.

IV. Operative treatment of the diseases of the thoracic wall itself, in as far as this leads to the exposure of the lung.

I shall say only a few words in regard to the management of pleural empyema later on.

## I. INTRAPULMONARY INTERFERENCE WITH DISEASED FOCI

Simple intercostal incision is almost invariably the procedure of election for penetrating into the lung. Under employment of the differential pressure method, it affords complete information concerning the existing condition in the lung, and serves, therefore, as a sort of exploratory incision. With the lung open to inspection, and with control of the pneumothorax, the organ may be very completely palpated in all its parts; moreover, by artificially changing the pulmonary circulation, through variations of the pressure, the differences in color of healthy and diseased tissue may further be accentuated, and in the same way the lung may be put on the stretch or caused to relax. In the pressure-difference chamber operations are readily performed within fluctuations of 3 to 8 mm. mercury without endangering the patient's life or running the risk of pneumothorax. Hence, this procedure at the present day is almost a necessary requisite for exact anatomic planning and judicious conduct of the operation. In the treatment of wounds of the lung, as well as in all aseptic interventions on the organ, for the extirpation of tumors of the lung or of the chest wall, it greatly facilitates the work of the operator.

The dangers of pneumothorax for the circulation and respiration are lessened, it is true, by its gradual development, so that the affected lung segments may be drawn out and operated on, under tamponing of the remaining pleural space. But just as the risk of infection, in subsequent operative interference, is certainly increased by the preliminary application of pneumothorax (Dollinger), through revolutionizing of the lymphatic circulation in the pleura, we likewise add to the danger when we operate in the presence of pneumothorax, or when we close wounds before the pneumothorax has been entirely removed. Infection represents the most serious danger of all endothoracic operations, and whatever serves to prevent its occurrence becomes a part of the indispensable outfit of the operator.

The intercostal incision is sufficient, as a rule, even for extensive foci of disease or injury, whereas the removal of a considerable portion of one or two of the neighboring ribs is almost exclusively reserved for cases of gangrene or abscess. In lung injuries we aim at closing the wound by direct suture (Garré), if possible, perhaps after trimming the margins, where these are ragged or soiled (Fig. 1). The lung is then dropped back into the thoracic cavity, and this is closed with sutures. I recommend either the inverted suture (Fig. 1, a, b, c) or the penetrating suture (Fig. 1, d and e) for suturing the lung, silk serving as suture material. Abscess and gangrene of the lung still require suturing of the diseased segment to the thoracic wall, opening the pathologic focus in the same or in another time. Particularly in the case of injuries, the discovery of small wounds is greatly facilitated by the differential pressure method; the artificial production of circulatory changes affording reliable guides as to the source of the hemorrhage.

With special reference to tumors of the lung, the sum total of our clinical experience is as yet far too small for the outlining of the general technic. We know, however, that large segments of a lobe, or even an entire lobe, may be removed, if necessary, as has been shown by animal experimentation and by clinical experience (Heidenhain, Lenhartz, Krause, Garré). The diseased segment of lung is clamped off and then excised well into healthy tissue, under successive hemostasis with the customary measures, partly by direct ligature, partly by acupuncture. It is astonishing how easily hemostasis in the lung may be obtained. The problem confronting our technic is rather the closure of the bronchi in a given case. Bronchial segments devoid of cartilage may be freed from their mucosa (see instrument, Fig. 2), and then closed by direct ligature and acupuncture. But as soon as the cartilaginous area of the bronchi is reached, our technic is still unreliable, and it is not yet decided how often the opening of these bronchi will necessitate a partially open treatment of the wounded lung area. It is then advisable to reduce as far as possible the size of the pulmonary wound by suture, all but the large bronchial lumen, keeping the bronchus open at first toward the outside, by fixing the lung to the chest wall. At the German Surgical Congress[1] in 1907 I have shown the point in the bronchi where any lung amputation must stop, on account of the impossibility of definite bronchial closure, and the grave danger for the pulmonary plexuses of the vagus nerves. The limit of operability is reached in this region. Lenhartz employed a procedure in two stages: first, firmly constricting the lobe at its base with an elastic ligature, following this ten days later by secondary ablation of the ligated pulmonary segment.

I take advantage of the opportunity to show pictures of my instruments for operating on the lungs (Figs. 3 to 6) as well as a picture of my operating table for this work (Figs. 7 and 8). At the same time I wish to point out especially that all prolonged procedures in the course of operating on the lung must be performed under the

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Arch. f. klin. Chir., 1907, lxxxii, 1.

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most careful covering and bounding of the entire wound area with tampons and compresses. In this respect I agree absolutely with Krause, Helferich and Küttner.

The enormous significance of *x*-ray illumination for the diagnosis of operable diseases of the lung is generally known. With its aid alone, tumors have been recognized in cases in which the most painstaking physical examination failed. Detailed reference to certain corresponding observations in sarcoma and carcinoma would lead me too far and must be reserved for another occasion. Opinions are still at variance as to the relative

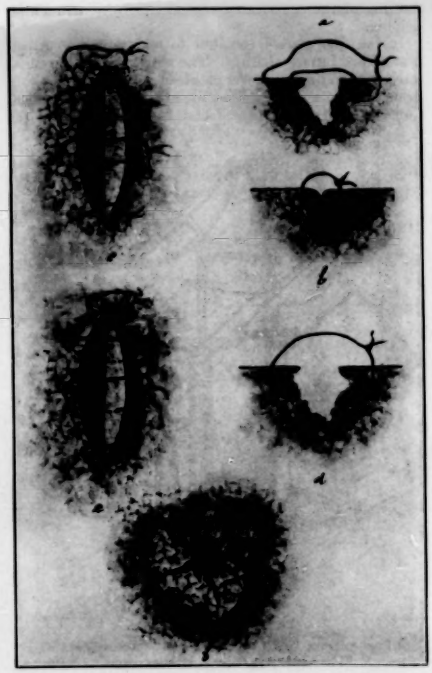

Fig. 1.—Sutures in lung tissue and excision of wound in the lung; a-c, inverted sutures; d and e, penetrating sutures; f, excision of wound of lung.

value of operating in one or two stages in abscess and gangrene. In lung tumors also I leave the advisability of operating in two stages, in many of the cases, an open question for the time being. We are engaged at present in the clinics on work of this character, in which one of your countrymen, Dr. Robinson, of Boston, is taking an active part.

## II. COMPRESSION OF THE LUNG THROUGH THE PLEURA AND THE TREATMENT OF PLEURAL EMPYEMA

The compression of the lung, by way of the pleura, through introduction of air or nitrogen, was recommended in pulmonary tuberculosis by Forlanini, Murphy, Lembke and Schell, Tuffier, Brauer, and in aspirative pneumonia by A. Schmidt. Many among you, I know, are impressed with Murphy's experience. Constricting the volume of the lung, and thereby inducing the shrinkage of the cavernous segments, with the associated influence of the shrinkage on the remaining symptoms, is certainly possible in a series of cases. The scope of usefulness of the method has been much dis-

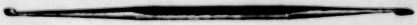

Fig. 2.—Author's bronchial spoon (about one-third actual size).

cussed. The technic of nitrogen repletion, after a small pleural incision, is so simple as not to need special discussion. The necessary quickness and the proportionate amount of gas are readily acquired by the operator. The applicability of the procedure is limited, in so far as pleuritic adhesions may represent an insurmountable obstacle. Concerning the actual value and the limits of usefulness of this artificial restriction in volume, it has

Fig. 3.—Author's double-curved elevator for drawing out the ribs (about two-fifths actual size).

been found in a large number of cases that the collapse of the lung tissue was followed by subsidence of the sputum and the fever, improvement in the general condition and the physical findings in the lung. The subject has been extensively discussed in the literature of internal medicine.

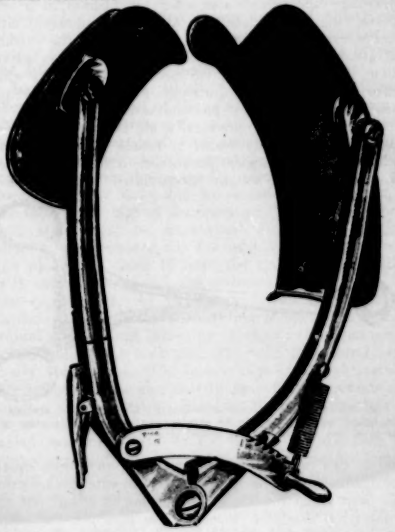

Fig. 4.—Rib-spreader, for use in operations on the lungs; after Mikulicz, modified according to Friedrich (about one-half actual size).

The introduction of the hand, by way of an intercostal incision, in order to enucleate the lung in the presence of adhesions, and to render it compressible, may prove an easy matter, or it may be attended with serious danger, as in one of my cases.[2] In my opinion,

2. Quoted in Surg., Gynec. and Obst., December, 1908, p. 632.

this procedure will prove successful in very exceptional cases only, the more so as but little hope is held out even by direct interference with the knife or the actual cautery, on such diseased segments of lung.

The treatment of pleural empyema, which should be referred to in this connection, will be thoroughly discussed to-day by another speaker, so that I shall limit myself to outlining in a few words our own attitude and technic. Every recent empyema is subjected in the first place to puncture with a thick trocar (or a small tho-

Fig. 5.—Author's lung forceps (about one-third actual size.)

racocentesis incision), followed by immediate institution of drainage according to Thiersch. This is so imperfectly known that a brief description is desirable. A large fenestrated Nélaton catheter is passed through the sheath of the trocar, a rubber membrane with a small orifice is slipped over it and tied fast to the tube where it emerges, thus providing an air-tight closure of the thoracic cavity at the site of the puncture or incision. If the Nélaton catheter is continued into a soft-walled drainage-tube, which acts after the fashion of a vein, permitting the exudate to escape, under increased internal pleural pressure, while it does not allow the entrance of air, because of the coaptation of its walls in inspiration, the result is a reliable mechanism (Fig. 9) which effectively permits the drainage of the exudate and prevents the occurrence of pneumothorax.

Many empyemas, practically all the metapneumonic cases, are completely healed by means of this apparatus without further surgical assistance. After the pus focus in the pleura has become encapsulated, the resection of

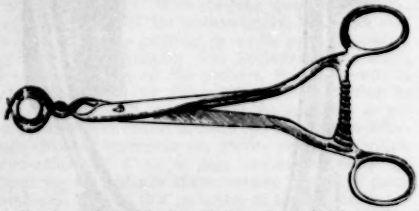

Fig. 6.—Author's hilus-bronchi-clamp, for artificial anemia of the lungs, compression of the pulmonary vessels and leaving open the bronchus (about one-half actual size).

one or two ribs may be performed at any time, should the drainage prove insufficient. At any rate this resection has been altogether abandoned by me in recent not circumscribed exudates, because it is here not yet necessarily indicated, requires a longer time, and may be more dangerous through the onset of pneumothorax. Complicated aspiration apparatus is required in rare and exceptional cases only. Thoracoplasty, for long standing empyemas, is sometimes performed only with incisions in the thick pulmonary pleura without decortication of the lung and under partial preservation of the adherent costal picture, as was described by me in the discussion on this subject at the German Surgical Congress of 1898 at Berlin.

### III. OPERATIONS ON THE THORACIC WALL, FOR DISEASE OF THE LUNGS

Among the interventions on the thoracic wall itself, in order to react in this way on the affected lung, operative procedures in emphysema and in tuberculosis have recently acquired prominence. The indications and plan of our thoracoplastic pleuropneumolysis in pulmonary tuberculosis have been extensively discussed by me in several publications, including *Surgery, Gynecology and Obstetrics*, and I have given the details of the proceeding and success of this operation a few days ago at the meeting of the American Surgical Association in Philadelphia.

In the first place I continue to maintain the correctness of my former attitude. The observation of my first cases, now dating back over eighteen months, further confirms the statements made by me at the German Surgical Congress of 1908, to the effect that the majority of the

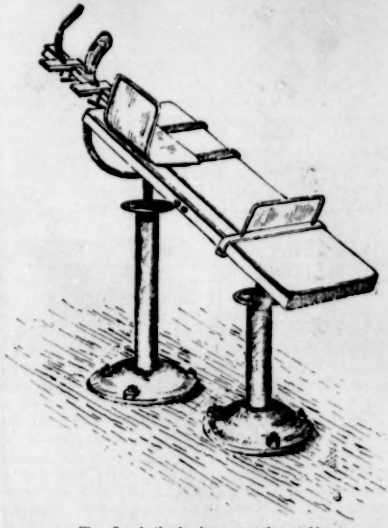

Fig. 7.—Author's lung-operating table.

patients operated on are essentially improved, as regards their general condition, increase in body weight, subsidence of cough, sputum and fever. In my last cases, I detached the apex of the lung itself and endeavored to induce its shrinkage. In my most radical procedure of deossification of the chest wall, the first rib had always been preserved, in consideration of the fact that its removal adds considerably to the length of the operation, increases the technical difficulties, and thus heightens the risk run by the patient. In the absence of old periosteal inflammations of the ribs, as a sequel to apicopleuritis, the ablation of the first rib is not, however, attended with special difficulties.

As has been pointed out in my last publications, the cases should be strictly selected, and only those patients operated on who have unilateral cavernous lesions, with at most passive foci on the opposite side. They must be free from evident recent tuberculous processes in other regions of the body, more particularly the bowel.

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Certain recent cases have encouraged me to extend the procedure also to conditions of slowly infiltrating noncavernous phthisis. The arrest of respiration is in itself capable of creating relatively favorable conditions for the cure of this type of phthisis also. In a similar way I have recently endeavored to eliminate an existing tuberculosis of the larynx by means of tracheotomy, and thereby to extend the indications for operating on the lung, but I am as yet unable to express an opinion as to the definite applicability and ultimate outcome under these circumstances. Freund's operation, the division of

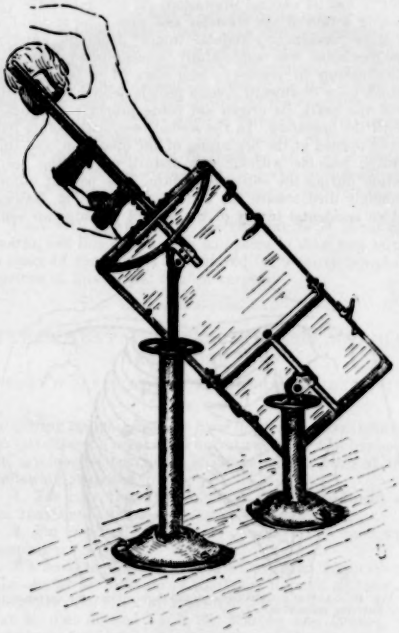

Fig. 8.—Author's lung-operating table, showing position of patient.

the first rib for the purpose of counteracting the progress of minute apical lesions, through improved ventilation of the pulmonary apex, I have not ventured on in any instance.

Concerning the treatment of pulmonary emphysema, through operative corrections of the rigid thorax by dividing several ribs in their cartilaginous area, I continue to adhere to the modification I have previously referred to, meaning that not only a small segment of cartilage is removed from each rib, as was done by the first operators, in connection with Freund's suggestion, but that pieces of 4.5 to 6 cm. in length are resected at the cartilage-bone boundary of the second to sixth rib, and this procedure followed by careful ablation of the retrocostal periosteum. This procedure has yielded a brilliant operative result in a case of genuine pulmonary emphysema of many years' standing. If the pieces are not long enough, or the removal of the retrocostal periosteum is not sufficiently thorough, a permanent result in the way of improved mobility of the thorax, even purely mechanical in character, can not be guaranteed. I have stated elsewhere that the cases must again be strictly selected for this operation; pure cases of primary alveolar emphysema alone should be operated on, for the time being. In case of all these patients, however, I believe myself fully justified in advocating the operation, which is easy of performance at the hands of an expert surgeon.

### IV. OPERATIVE TREATMENT OF DISEASES OF THE THORACIC WALL OF THE HEART AND THE ENTRANCE INTO THE MEDIASTINUM

Tumors of the chest wall may be dealt with at the present day with a certain intrepidity. A number of cases from my clinic have been published, in which a flap of the soft parts was applied directly to the exposed lung, after extensive removal of the chest wall, and healed without reaction. In a case of thoracic sarcoma, in a man 34 years of age, I removed 160 square centimeters of the right diaphragm over the liver, in order to be radical, and the wound healed without interruption. This particular field I am inclined to regard as one in which the differential pressure method will score its first generally conceded triumphs.

The surgery of the heart has likewise been enriched of late by important contributions concerning the indications for operative interference. Especially in injuries of the heart, which in a large percentage of cases are associated with left-sided pneumothorax, I note a very essential advance in the recognition of the cardiac injury, by the rapid control of the pneumothorax through the differential pressure method.

In collaboration in my clinic, Sauerbruch and Häcker showed that the fall of the minimum pressure down to the zero value increases the blood pressure in the body, retards the heart-beat and augments the individual waves. Thus the arbitrary variation of the difference in pressure provides the means for influencing, at will, the sequence of the beats, and the repletion of the heart, in the individual steps of the operation. The pneumothorax will accordingly be maintained during the cardiorrhaphy, and removed for the next following suture of the pleura, in order to have the thoracic cavity filled with inflated lung, and less susceptible to infection. In the experiments, the heart function is invariably retarded as soon as the pericardium is opened, the individual contractions becoming stronger; the heart sometimes bulges out enlarged, the right half being especially voluminous. The hemorrhage is always systolic, becoming diastolic also only in case of large wounds and injuries of the auricles. Bleeding from the left ventricle is as a rule less severe than from the right. I was enabled to demonstrate on the human subject that the employment of the differential pressure method assists in the rendering of the diagnosis and the indications, in so far as the behavior of the pulse did not change with the variation of the pressure differences, the pulse being, therefore, governed exclusively by the heart puncture and the tamponing effect of the blood-filled pericardium on the heart. Furthermore, the hemorrhage from a heart wound is seen to diminish in proportion as the lungs are allowed to collapse. The pneumothorax thus becomes the regulator of the hemorrhage, and is allowed to persist until the suture of the heart has been completed. After the cardiorrhaphy, the pneumothorax is definitely removed, and the pleura and pericardium are sutured. The shaking movements of the heart invari-

ably present during the application of the suture are best controlled by grasping the heart properly, or by means of fixation with a supporting loop.

The intercostal incision alone has been repeatedly advocated of late for the exposure of the heart. At my hands, the ablation of the cartilage of the fifth rib, to an extent of 10 cm., proved very valuable in injury of the right ventricle, after preliminary double ligature of the left mammary artery. One rule will not fit all cases; and the possibility of free inspection should at once be

Fig. 9.—Thiersch's drainage.

provided, as otherwise much pulling on the heart or bending of the organ may become necessary to render the injury accessible. The ablation of the costal cartilages proved no obstacle for primary wound closing and accurate healing, complete recovery ensuing in a very short time. These experiences with suture of the right ventricle contributed to my adopting a new route for the exposure, especially of the anterior mediastinum; namely, transverse sternothoracotomy. The exposure of the root of the large vessels, as well as entrance into the anterior and posterior mediastinum are enormously facilitated by this mode of incision, with diminution of the dangers, and improved conditions for healing. After bilateral ligature of the mammary artery, the sternum is sawed through from behind with the Gigli saw, and the transverse incision is extended on either side into the intercostal muscle tissue. In this way a sufficiently free access is rapidly obtained (Fig. 10) without sacrificing portions of the sternum or the ribs. In contradistinction, the longitudinal division of the sternum, as practiced in certain isolated cases, not only represents a much more serious and time-consuming intervention, but it has its natural limitations on account of the opposing action of the clavicles and ribs. The removal of a large "Askanazy-glandular tumor" from the anterior mediastinum was successfully accomplished, the case terminating in recovery; also that of a large tumor which grew downward from a pedicle behind the bronchi and the heart, its origin not being properly recognized until the operation. In the second case, both pleura had to be opened at the beginning of the operation, and this proved possible without any disturbance of the heart action during the entire procedure. The patient unfortunately died toward the end of the operation, because of an accidental injury of the wall of the superior vena

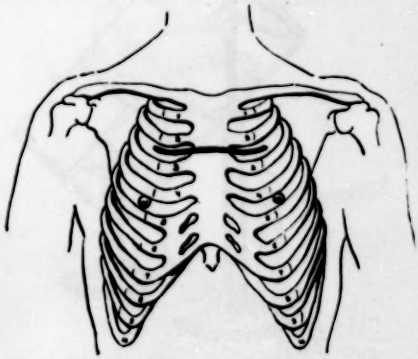

Fig. 10.—Author's transverse sterno-thoracotomy for entrance in the anterior mediastinum.

cava, which was immediately followed by an air-embolism with fatal outcome. These disastrous sequelæ may possibly be avoided in future cases by adopting the suggestion of my assistant, Dr. Schöne, and at once aspirating the air, through a strong pump-syringe (after the manner of Trendelenburg's operation for embolism), from the branches of the pulmonary artery, after temporarily clamping the pulmonary artery or the vena cava close to the heart. Experimentation in my clinic has shown (Sauerbruch and Häcker) that both venæ cavæ may be closed for several minutes, leaving the pulmonary area devoid of a blood supply, without immediately endangering life. On the other hand, personal observation on the human subject has taught me that after complete arrest of the heart action during one to one and one-quarter minutes, the exposed organ will promptly respond again to correct massage, with a rhythmic sequence of beats.

All the recent experiences of cardiac and mediastinal surgery may be summarized to the effect that by acting promptly, under strict asepsis, after a sharply outlined anatomic plan, we may, with the aid of modern techni-

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cal devices, anticipate further results which far exceed the limit of what has been accomplished in the past. Successful operative treatment of valvular stenoses of the mitral and aortic valves seems by no means beyond the realm of the attainable.

In conclusion, I wish to add a few words on the resection of the esophagus. Particularly in this connection, the artificial suppression of pneumothorax has induced exaggerated expectations (Mikulicz), but surgical experience is constantly bearing out the views of those who did not consider the prospects in this direction as particularly hopeful. Only the lowermost segment of the esophagus, about 6 or 8 cm. above the cardiac orifice, and the cardiac orifice itself, may still be regarded as legitimate fields for the operation (Sauerbruch, Küttner). Here, again, exploratory thoracotomy can alone afford sufficient information concerning the extent of the disease and the practicability of the operation; and unless the lifting of the stomach through the diaphragm permits the replacement of the lower end of the esophagus we are not justified in speaking of it as a useful operation. The achievement of half-way permanent results, in spite of much earnest endeavor, still remains a desideratum.

I am well aware of the sketchy nature of these remarks, but this mere sketch will serve to show how large a space of time would be required for a fairly complete picture of this special field of surgery.

## EXPERIMENTAL INTRATHORACIC ESOPHAGEAL SURGERY *

HENRY H. JANEWAY, M.D., AND NATHAN W. GREEN, M.D.
NEW YORK

During the past year we have limited our work chiefly to intrathoracic esophageal operations. Our aim has been to develop the technic of an operation for each of the following purposes:

1. For circuiting the cardia by the establishment of an anastomosis between the stomach and esophagus.

2. For resection of a portion of both the stomach and esophagus.

We have used two methods of artificial respiration; the one by an inflation of the lungs through an intubation tube; the other by a positive pressure cabinet, similar to that devised by F. T. Murphy and Brauer, in which the head of the dog has been placed.

Each method has had definite advantages. The intubation method has demonstrated two important facts:

1. An artificial apnea is developed which abolishes all muscular effort at respiration during operation.

2. The range of ether-administration is greater and the danger of death from too deep narcosis is less.

The peculiar advantages of the cabinet are the following:

1. The absence of a tube entering the larynx.

2. The smaller quantity of ether required, on account of the pressure of air on the head.

So decided have been the advantages of each method that we have combined the good features of both appliances, and with the cooperation of Prof. Joseph A. Blake, we have had a new apparatus constructed (Fig. 1). It consists of an air-tight box, in the front of which is an opening to receive the patient's head. On both sides of it there are glass port-holes which can be opened and through which the etherizer can constantly view the face of the patient. Below and behind these, at convenient distances, are openings for the etherizer's arms. The posterior one of these is fitted with a rubber valve which prevents the escape of air when the arm is introduced. The front one is closed by the rubber glove suggested by F. T. Murphy, of Boston. This has a long gauntlet and permits the anesthetist to remove the arm at will during the operation. Lights are arranged along the posterior wall for the double purpose of affording illumination and warming the air. The exact shape of the box is unimportant.[1]

The particular feature, however, to which attention is directed is a mechanism situated on the top of the cabinet that permits of a rhythmical escape of air from the box. In virtue of this there is a periodical rise in pressure to the desired height, alternating with a rapid fall to normal atmospheric pressure. The rapidity of this rhythm can be varied at will by the rheostat which

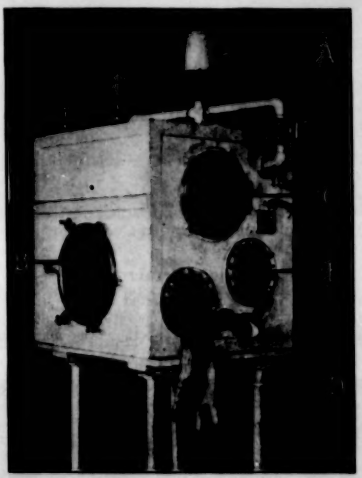

Fig. 1.—Pneumatic positive pressure cabinet. A, automatically working valve for producing rhythmical rise and fall of pressure; B, opening for the head; C, glass port-hole for observing the patient; D, port-hole for the left hand with the glove pulled out; E, opening for the right hand of the anesthetist.

controls the speed of the motor and pump. The valve accomplishing this is opened and closed by a commutator turned by a gear and pinion attached to the crank-shaft of the pump. The brush making the contact with the commutator is in series with a helix which operates this valve.[2]

By means of this mechanism practically as complete inflation and deflation of the lungs and the same inhibition of muscular efforts at respiration is obtained as by the intubation method. Professor Blake, for whom this cabinet has been made, has on the human subject demonstrated that such an inhibition occurred. During an

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. We are now having another cabinet constructed which is so arranged that the etherizer is seated behind and introduces his hands through holes in the back wall, and views the patient's head through a port-hole situated in a slanting posterior portion of the roof of the box.

2. We are now devising a more compact pump and motor which can be placed on the shelf between the legs of the table on which the box rests.

operation for empyema in a child, whenever this device was utilized, the diaphragm and intercostal muscles remained at rest. This contrasted strongly with the respiratory efforts which occurred as soon as the valves were turned which permit of a change to the maintenance of a constant positive pressure. We desire to lay special stress on this point, because the absence of muscular movements during operations in the thoracic cavity contributes in an important degree to the speed and ease of the operation.

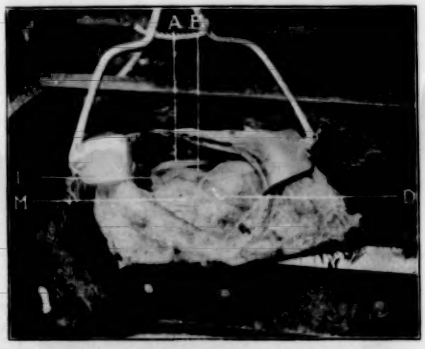


Fig. 2.—Chest opened with the viscera undisturbed. A, aorta; E, esophagus; L, lung held up by retractor; M, mediastinum; D, diaphragm.

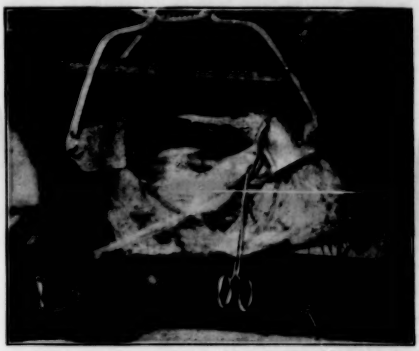

Fig. 3.—Diaphragm opened and the anterior surface of the stomach, S, drawn up through the opening.

### TECHNIC OF OPERATIONS

In the past year we have operated on sixty-nine dogs. During the entire time of each operation complete anesthesia by either chloroform or ether was maintained. Our technic has been as follows:

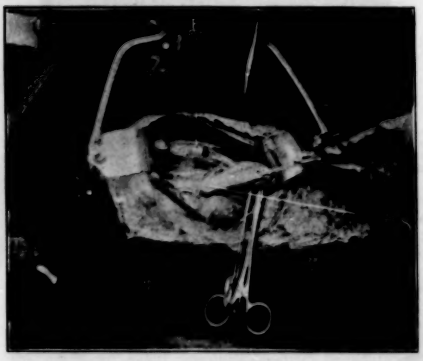

Fig. 4.—Female half of the button introduced into the stomach at S; and a purse-string suture around the opening ready to be drawn up. The male portion of the button lies in the esophagus at E.

*1. Gastroesophageal Anastomosis Without Resection.*—The eighth rib is first resected subperiosteally. The chest cavity is opened in the periosteal floor of the resected rib (Fig. 2). The peritoneal cavity is opened through the diaphragm, and the anterior wall of the stomach is drawn into the thoracic cavity (Fig. 3). The stomach is opened, the female half of the button is introduced (Fig. 4), and the opening closed by a purse-string suture. The male half, which has been previously passed down the esophagus, is now separated from its carrier and supported for engaging the female half (Fig. 5). This button, which has been designed by us especially for esophageal anastomosis and depends for its union on penetrating needles, is then pressed together. The circle of anastomosis is reinforced by a running suture (Fig. 6). The portion of tissue between the two halves of the button subsequently sloughs out and liberates the button. The opening through the diaphragm is closed by suturing this structure to the wall of the stomach (Fig. 7). Closure of the chest completes the operation.

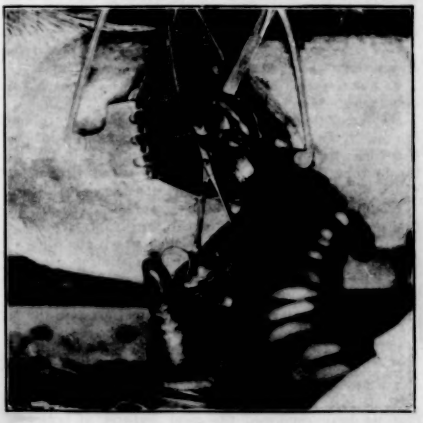

Fig. 5.—The two halves of the button (within the esophagus and the stomach) being approximated and ready to be pressed together.

*2. Gastroesophageal Anastomosis with Resection of a Portion of the Esophagus and Stomach.*—In this procedure we have found it an advantage to resect both the seventh and eighth ribs, but to open the thoracic cavity

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in the periosteal floor of the seventh rib. The peritoneal cavity is opened behind (Fig. 8) and in front of the stomach. The gastrosplenic (Fig. 9) and gastrohepatic ligaments are now divided between double ligatures. This permits of the delivery of a large portion of the stomach into the thoracic cavity. The cardia is divided with the cautery-knife between two clamps (Fig. 10). The esophageal stump is protected by clamping over it

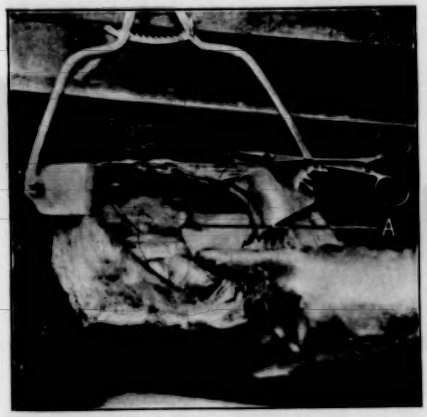


Fig. 6.—Anastomosis made by the button at A. It is being reinforced by a continuous Lembert suture around it.

a gauze pad. Interrupted Lembert sutures are passed from the posterior wall over the clamp to the anterior wall of the stomach. The clamp is now removed, all bleeding stopped, and the female half of the button dropped into the cavity of the stomach. The interrupted sutures are now tied and closure of the stomach

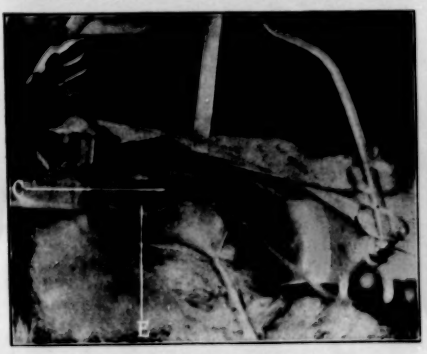


Fig. 8.—Opening behind the stomach into the peritoneal cavity. E, esophagus; artery clamp is holding the crus of the diaphragm C.

completed by continuous Lembert sutures. The esophagus is then amputated by the cautery between a purse-string suture, and a clamp which is applied to the upper end of the segment to be removed. The free end of the esophagus is pushed into the cavity of the male half of the button (Fig. 11), and the two halves are pushed together. The circle of union is reinforced by a running stitch (Fig. 12). The stomach is then sewed to the opening in the diaphragm, and the chest wall closed.

Our work has demonstrated that speed, absolute asepsis, and scrupulous care in the minimizing of trauma are essential to success in intrathoracic surgery. Even the exposure of the raw mucous membrane, a procedure

Fig. 7.—Anastomosis completed at A, and diaphragm being stitched to the stomach at S, for the purpose of preventing prolapse of any viscus into the chest.

which is done with impunity in the abdomen, is not devoid of danger in the thorax. It is, therefore, for the sake of diminishing trauma, and preserving greater asepsis that we have utilized a button in making the anastomosis. Our results have been decidedly better than they were by the suture method. We feel that the principles

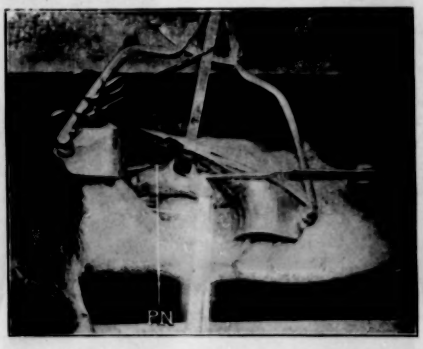


Fig. 9.—Passing of a double ligature around the gastrosplenic omentum and the attachment of diaphragm to esophagus. The left pneumogastric nerve with a diagonally communicating branch is shown at Pn.

mentioned above explain why this is so. We have adopted the use of a button with some reluctance, because, for anastomotic purposes elsewhere, a suture method is preferable. We hope, from what Dr. Meyer has told us of his work in this field, that it may be accomplished.

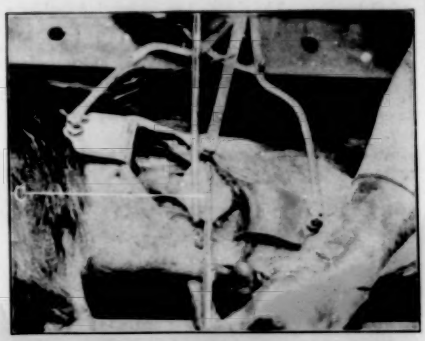

Fig. 10.—The gastro-splenic and gastrohepatic omenta have been tied and the cardia has been drawn up into the chest. Two clamps are placed across it at C, preparatory to cutting it through with the cautery knife.

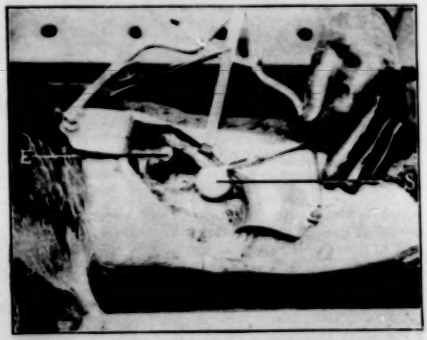

Fig. 11.—Stump of the esophagus, E, and the stomach, S, previously closed by a Lembert suture, and containing the female half of the button. Above the stump of the esophagus, and in its lumen, lies the male half of the button. These two portions are ready to press together to form the anastomosis.

Fig. 12.—Anastomosis at A, made by pressing the two halves of the button together. A continuous silk suture is being passed around the point of anastomosis.

Even with our latest technic the results are far from satisfactory. We have, however, successfully accomplished four resections of the cardia and esophagus, and six lateral anastomoses of the stomach and esophagus without resection. Nevertheless, our work indicates that with a further improvement of technic the operation of the anastomosis with a resection can be accomplished without so great a mortality, and will eventually prove a procedure of promise. On the other hand, the operation of anastomosis of the esophagus with the stomach without a resection, under our present technic, is not accompanied with a high mortality.

## PNEUMECTOMY WITH THE AID OF DIFFERENTIAL AIR PRESSURE: AN EXPERIMENTAL STUDY

### THE NEW TYPE OF APPARATUS USED *

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NEW YORK

### 1. EXPERIMENTAL WORK IN EXCISING LOBES OF THE LUNG

Next to suturing stab and shot wounds of the lungs and extracting from the bronchi foreign bodies that have been located by the *x*-rays but cannot be removed by means of the bronchoscope, excision of a portion of the lung and amputation of one or more of its lobes (pneumectomy), have been rendered possible by the use of differential air pressure.

Resection of a lobe seems indicated when the greater part of it has become diseased, but its main bronchus cannot be properly reached and isolated. In the human being this condition is frequently encountered.

Extirpation of one or more pulmonary lobes, other more conservative methods having failed, will perhaps become the operation of choice in cases of serious destruction of the lung tissue by chronic inflammatory processes, and, of course, in the presence of new growths.

The success of the operation for total extirpation of the lung depends on the operators' ability to close the divided bronchus air-tight.

Various methods have been employed for this purpose, as follows:

1. One mass silk ligature around the bronchus and its vessels; amputation; cauterization of the mucosa of the stumps with pure phenol or the Paquelin cautery.

2. Elastic mass ligature around hilus; removal of lobe at second sitting (Lenhartz).

3. Ligature and division of main bronchus; remnant of lung tissue stitched over stump (Garré).

4. Isolation and temporary clamping of bronchus; curetting of the mucous membrane of the divided bronchus; tight silk ligature; second loose catgut ligature more centrally around bronchus (Friedrich).

A fifth method of extirpating the lung is developed below. It is original with myself as regards the treatment of the stump and was perfected in the course of operations on dogs at the Rockefeller Institute for Medical Research, New York, beginning the middle of November, 1908.

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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In this work I had the able assistance of Dr. Martin Rehling, adjunct attending surgeon at the German Hospital of New York, who also took charge of the after-treatment of the dogs operated on, and further of Dr. Edward Adams, instructor in surgery at the New York Post-Graduate Medical School and Hospital, for anesthesia. To both of them my sincere thanks are herewith again expressed.

After a few trials the mode of excision which is now pretty generally practiced in appendectomy was adopted as standard, viz.: isolation of the organ (here the bronchus); clamping and crushing; ligation and amputation; burying the stump; top sutures.

*1. Isolating the Bronchus.*—The lung is pulled forward with the left hand and its main bronchus palpated; with an anatomic forceps the spaces between accompanying vessels and bronchial wall are penetrated, one after the other, from the front backward; a silk thread is pushed between the blades of the forceps by the assistant and pulled through by the operator (Fig. 1). The vessel is tied close to the heart. Then by pulling on the first ligature, a second silk thread is passed through and tied distally. The vessel is then divided. This manner of securing the vessels in the depth of the thoracic cavity is preferable to using a Deschamps needle with a double thread. Two to four vessels have to be ligated according to anatomic findings, which vary much according to the early or late division of the pulmonary vessels. Now the bronchus is entirely freed; the loose connective tissue is pushed off with a gauze mop proximally and distally in order to have the bronchial stump as long as possible.

Fig. 1.—Intercostal incision in third or fourth left interspace. Rib-spreader in place. Descending aorta and portion of esophagus in background. Both hands covered with cotton gloves. Left hand pulls lobe of lung upward and palpates bronchus. Right hand pushes anatomic forceps between bronchus and its accompanying blood-vessels and draws silk thread through for ligature. Vessels then doubly ligated and cut through one after another.

*2. Clamping and Crushing.*—A bayonet clamp is placed on the bronchus near to its base, its blades being covered with rubber tubing. Above it the bronchus is crushed,[1] usually with Doyen's large intestinal crusher (Fig. 2).

*3. Ligation and Amputation.*—The remaining fibrous sheath is ligated with silk, a clamp placed distally and the bronchus cut off (Fig. 3).

*4. Burying the Stump; Top Sutures.*—Before removing the bayonet clamp, or after, according to ease of access, the bronchus is secured on either side with a pointed forceps (Fig. 4). In order to accomplish that safely, a branch of the vagus nerve must

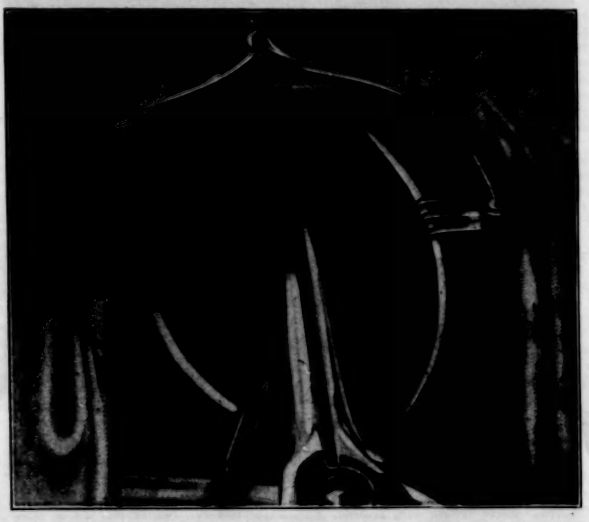

Fig. 2.—Bayonet clamp, rubber-covered, compresses base of bronchus. Doyen's crusher applied to bronchus above clamp. Stumps of ligated blood-vessels shown.

1. The crusher should be an instrument the working of which can be fully controlled by the operator; it should always be applied with care, its nose pointing at right angle to the bronchus, catching the cartilages surrounding the bronchial tubes which have to be crushed in a line with their longitudinal axis; otherwise, a hole will be torn in the crushed portion.

Fig. 3.—Crushed portion of bronchus ligated with silk about three-eighths to one-half inch above bayonet clamp. Strong artery clamp applied distally. Scissors divide crushed portion of bronchus between distal clamp and ligature.

often be pushed aside with a blunt instrument. Care should be exercised to avoid injuring the nerve. The two clamps are pulled on and the crushed part is pushed back into the lumen of the bronchus with anatomic forceps or tucker. Two to three top sutures (silk) draw the uncrushed part of the stump over the buried, crushed portion. The sutures must not include much tissue; they should not penetrate into the lumen of the bronchus. When tied, air-tight occlusion results (Fig. 6). If material is lacking, the pericardium can be hooked by the needle on one side of the bronchial stump and thus used to advantage for closure.

This method of burying the stump sometimes cannot be carried out; for instance, if the bronchus divides early, so that the ligature must close two lumina (Fig. 7, a). In that event an emergency method must be resorted to as follows: A second (mass) ligature is drawn around the stump by the assistant with an anatomic forceps in one hand and the crushed part of the bronchus pushed inward by him with the other hand. The operator then ties it firmly (Fig. 7, b). The ligature will, in most instances, grasp and then securely hold the buried part.

These are the two methods used by me in treating the stump. Both are practical, but the safer and more surgical one is the sewing of the uncrushed portion of the stump over the crushed portion, so as to form an air-tight cover for the same (Fig. 6, a, b, c).

The described method insures a permanently air-tight closure of the bronchial stump. The importance of such air-tight closure will be understood from the fact that leakage produces pneumothorax and, if the thoracic wound had already been closed, would result in a fatal issue. Should the stump be found to leak, such a condition becoming apparent through a rapidly increasing emphysema of the skin, the patient must promptly be put back under differential pressure, the thoracic cavity be reopened and the stump be made air-tight.

The next step in the operation is the closing of the thorax. In my paper[2] on esophagogastrostomy read last week before the American Surgical Association, it has been pointed out that in opening the thoracic cavity it is advisable to avoid resection of the ribs; closure of the wound is thereby simplified. The intercostal arteries are easily injured by the needle in closing the wound, if one or more ribs have been excised, unless a mass

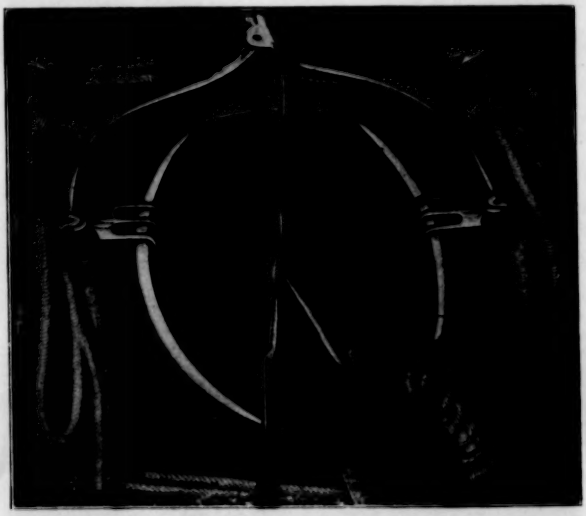

Fig. 4.—Stump of bronchus pulled forward with two pointed artery forceps. Crushed portion pushed inward with anatomic forceps (or tucker). One of the two or three required top sutures (silk) being laid.

2. Meyer, W.: Esophagogastrostomy after Intrathoracic Resection of the Esophagus, Ann. Surg., July, 1909, L, 175.

ligature at the proximal end of the rib is made to surround the vessels. I prefer a long intercostal incision and then separate the ribs by a suitable rib-spreader. In closing the wound, two or three retention sutures with silk or chromicized gut surround the two ribs next to the incision.[3] Below, the needle enters close to the upper border of the rib which is to be surrounded, and above, it is made to hug the upper border of the rib adjacent to the incision (Fig. 5). The thoracic parietes are closed with continuous layer sutures of catgut. A few retention sutures of silk or catgut approximate the skin wound, which then is closed with great care, the needle always piercing the borders close to the wound to avoid overlapping. Aseptic gauze dressing completes the operation.

When the thorax is thus closed, the pleural cavity is, at first, full of air. With advancing cicatrization, this air is absorbed, the heart with the opposite lung is gradually pulled to the other side, the diaphragm rises and the thorax flattens somewhat. The cavity is thus gradually filled in. This process takes several weeks, if not months.

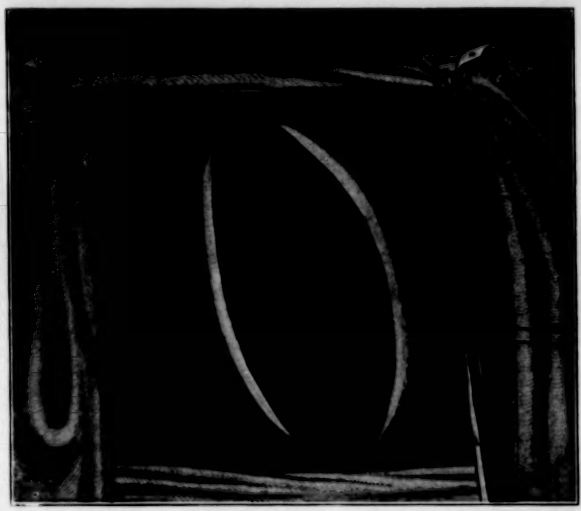

Fig. 5.—Sutured bronchial stumps in depth, shown diagrammatically. Esophagus crossed by aorta in background. One pericostal silk suture *in situ*, the second one being placed.

What takes the place of the removed lung in the interval? A logical conclusion would be to assume that a serous effusion sets in as soon as the air left in the empty pleural cavity has been absorbed. But such is not the case, according to Dr. F. C. Wood, of New York, pathologist to the German and St. Luke's hospitals, who kindly assisted in the investigation of this interesting question. His preliminary report, under date of May 26, 1909, on the first four dogs supplied him, is as follows:

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The animals were bled from the femoral artery and then immediately injected through the same vessel with 4 per cent. formaldehyd. They were then frozen solid and sawn in that condition. The topography of the organs must, therefore, be absolutely normal.

*Dog 1* (*Lab. No. 38*).—Terrier, white, fairly well nourished but of light bone; killed ten days after excision of the left lung. The thoracic wound was clean. There was considerable falling in of the lateral wall of the left chest, with restriction of motion of that side. The pleural cavity on the left side contained a small amount of clear serum.

On section, the right lung was found to fill the right side of the chest and to extend in its lower portion beyond the middle line. Anteriorly also it passed over the surface of the heart beyond the median line. The upper lobe curved forward to the left about 3 cm. beyond the middle line. Anteriorly the heart was in contact with the chest. Posteriorly the aorta and esophagus curved forward between the heart and the lateral chest wall so that there was a considerable space in the left pleural cavity still filled with air. There were no adhesions anywhere. The diaphragm on the left side had been pushed up about 2 cm. The stomach, though empty, was placed much higher than was usual, following the liver and diaphragm up toward the left pleural cavity. All the organs appeared normal. The bronchial stump was perfectly healed. The chest scar was clean and showed only as a slight thickening on the inner wall of the thorax.

*Dog 2* (*Lab. No. 34*).—Foxhound, small white, rather thin, but with good muscle and bone; weight, 10.5 kilos. Operation, excision of left lung, March 19, 1909; killed April 1, 1909, thirteen days afterward.

No noticeable falling in of chest wall and no interference with respiratory movements.

Section in transverse plane showed right pleura large and filled with emphysematous lung. Heart pushed over about 2 cm. to left. Left pleura filled with air. No fluid in left pleura and no inflammation of walls of cavity beyond a slight reddening along the line of the intercostal incision into left pleura.

*Dog 3* (*Lab. No. 33*).—Terrier, brown, in good condition, but thin and light-boned. Left lung excised March 16, 1909; killed April 3, 1909, eighteen days after operation.

When alive the thorax on the side from which the lung was removed showed some falling in and restriction of movement in breathing.

On section, the left pleural cavity was closed, but the leaves of the pleura were not adherent. There was no inflammatory exudate. The right lung had expanded, following the heart to the left. The lower lobe passed completely behind the heart over to the left, and appeared to the left of the ventricle. The site of the bronchial stump can scarcely be seen.

*Dog 4*.—Terrier, white with black and brown markings, very powerful muscles and bones. Dog in very good condition. Left lung excised March 9, 1909; killed April 8, 1909, thirty days later.

While the animal was alive no falling in of the thorax or restriction of movements was noticed.

On section, the heart was found to be slightly displaced to the left and followed by the right lung. The left pleural cavity was but slightly smaller than normal and was filled with air. There was no fluid in the pleura and no evidence of inflammation. The bronchial stump projected about 2 mm. from the mediastinal wall, and the ligatures were still present.

3. This method suffices in animal experimentation. When operating on human beings, Friedrich drills a hole into the lower rib, passes the ligature through the same, and then surrounds the adjacent upper rib. In view of the fact that the thin fascial parts of the thoracic wall, when sutured, tend to necrosis, thus interfering with primary union later on, it seems advisable to use in place of silk, chromicized catgut for these sutures. It does not have to be extracted.

It is astonishing how well dogs stand entire removal of the lung on one side. Often they were on their feet in less than an hour after the operation, as soon as the effect of the hypodermic injection of morphin had worn off, which was administered at the time of putting on the dressing at the close of the operation.

The remarkable ability of the lung to continue performing its function even in the face of a far-reaching, though gradual, destruction of its tissues, as in tuberculosis, is well known. Research by means of differential pressure has now shown that such destruction of lung tissue is equally well borne when it occurs suddenly, i. e., if one or more lobes are removed with the knife.

The method for such sudden removal, described above, is a reasonably safe procedure in dogs and so effective that its trial on human beings appears justified in cases in which excision of the lung is indicated, with this difference, however, that in the human being the first branches of the main bronchus take the place of the main bronchus of the dog (Friedrich).

As proof of the effectiveness of the method the statistics follow below of my results obtained with it at the Rockefeller Institute in the course of the last six months.

Twenty-one total pneumectomies were performed, 18 on the left and 3 on the right side. Of the 18 dogs on which the left-sided operation was performed, 15 recovered and 3 died. The cause of death in one case was a

Fig. 6.—Diagram: stump and crushed portion of bronchus (a) tied; (b) pushed inward; (c) sutured. Arrows indicate direction of intrabronchial air-pressure, which makes bronchus air-tight against itself. Safety of occlusion increases with increasing air-pressure.

small gauze mop left in the chest, and in the other two cases pneumothorax, which was due in one instance to a leaky stump and in the other to the reopening of the inner angle of the sutured wound. Of the 3 dogs on which right-sided pneumectomies were performed, 2 recovered and 1 died, death being due to distemper.

Thus of 21 total excisions of one side of the lung we had 17 (81 per cent.) recoveries and 4 deaths.

Removal of one or more lobes of one lung was done 6 times. Of these dogs 5 (100 per cent.) recovered and 1 died, death occurring in the course of the operation from the anesthetic.

Summing up, I had in my work, as far as the finished excision of the lung is concerned, in 26 cases, 22 recoveries (84.6 per cent.). At one time an uninterrupted series of 12 dogs recovered without a single death. Usually the wound healed under one dressing.

These satisfactory results I attribute to the rigid asepsis and the method of operation employed, also to the safe and reliable working of the new "differential pressure apparatus," by means of which all the operations were performed.

It is described in the second part of this paper.

## II. THE NEW AMERICAN-BUILT APPARATUS FOR THORACIC SURGERY

We owe it to the work of Sauerbruch and Brauer that the thoracic cavity has been definitely opened to surgery. There now remains no nook, no corner of the human body to which the knife cannot be applied with safety.

Operations on the organs within the thoracic cavity, principally the lungs, esophagus and heart, have been done prior to the research work of those investigators. Especially the heart has had an exceptional position, inasmuch as an osteoplastic operation on the thoracic wall permits the surgeon to reach it and its pericardial sac without injury to the pleural cavity. Still, such injury could not always be avoided, nor was a safe operative attack on the lungs and esophagus, without the presence of adhesions between costal and pulmonary pleura, possible before 1904.

The physiologists, it is true, had solved the problem long ago in their laboratory work on animals. With a cannula tied in the incised trachea, or later with an intubation tube, air was rhythmically forced into the lungs by bellows and artificial respiration thus kept up as long as needed (Fell-O'Dwyer and others).

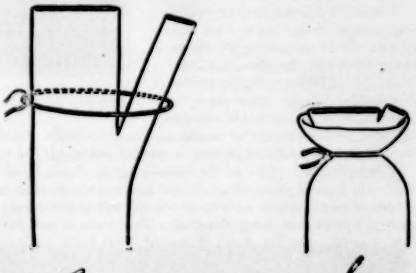


Fig. 7.—Diagram: bronchus short and dividing early; (a) ligature of crushed main bronchus and branch; (b) crushed portion being thicker than lumen of bronchus, the complete pushing in is not feasible. Mass ligature around stump and crushed part.

But with such devices the surgeon could not be satisfied for regular operative work on sick human beings. His requirements differ from those of the physiologists. He must be enabled to do operations within the thorax as safely as in other parts of the body, at least so far as general anesthesia with its possible sequelæ and accidents is concerned. He should not be obliged to put a cannula into the trachea, either through the mouth or directly through a tracheal incision to produce anesthesia. The head and mouth of the patient must be as unincumbered and within as easy reach of the narcotizer in thoracic surgery as in other operative work, while an acute pneumothorax must be avoided, that stumbling-block which, up to the beginning of this century, practically excluded the lungs and intrathoracic portion of the esophagus from the domain of operative surgery. The requirements of the surgeon are filled by differential air pressure apparatus.

I have been interested in differential pressure surgical work from its inception, having been brought in close touch with it, while in Europe in 1904, and seeing at that time an operation performed in the just completed first differential pressure chamber ever built.[4]

4. Ann. Surg., 1905, xli, 667.

But there remained in that chamber as well as in all those built later on the same general lines considerable scope for improvement.

The European negative pressure chambers being constructed entirely of metal, are reverberating and through their pipes connecting with the pump cylinder all the noises occurring from valves and otherwise in the pump are directly transmitted to the chamber. Surgeon and anesthetizer are separated by a solid wall and cannot hear each other speak; for communication a telephone is provided, but the noise in the chamber makes it almost useless. Again, the anesthetizer can look into the chamber; but the surgeon cannot see the face of the patient, which is hidden from his view by a metal casing. Neither surgeon nor the assistants have sufficient elbow-room, and there is no space for an assistant to the left of the surgeon. No provision has been made against break-down of power. As placed, the large European differential pressure chambers can be used for negative pressure only.

All the other types of European apparatus are constructed for positive pressure only. They are distinctly inferior to the above-mentioned negative apparatus, inasmuch as with all of them occasions arise which necessitate the interruption of the differential pressure during anesthesia, the Engelken type of apparatus perhaps excepted; but the latter has not only all the before-mentioned disadvantages of the negative pressure chamber, but also the additional fault that the anesthetizer is not permitted to concentrate his attention exclusively on the patient, he having to take care also of the pressure-regulating valve and of the telephone.

In the Brauer as well as in the Engelken type of apparatus the anesthetizer's position during the operation is rather uncomfortable, and in the Brauer type especially the proper handling of the patient under anesthesia is a difficult matter.

Apparatus combining intubation and masks appears so manifestly inadequate and dangerous for every-day surgery that it cannot deserve preference over apparatus leaving the mouth of the patient unincumbered. Yet this kind of apparatus, too, and the ingenious devices of Tiegel, Brat-Schmieden, Karewski, also Seidel's apparatus for after-treatment, will find their place.

In the spring of 1908, when I wished to acquire apparatus for intrathoracic operations, only that invented and manufactured in Europe was publicly known. A careful canvass of the whole field showed that the then existing apparatus was of two general types: one working from atmospheric pressure downward (negative pressure), the other one from atmospheric pressure upward (positive pressure).

But there was none working both ways, and it was just such apparatus that I wanted. I decided to build it myself and, moreover, to build it in this country. I got in touch with my brother, Julius Meyer, an engineer by profession, and succeeded in interesting him in the subject. Together we constructed a chamber for positive and negative differential pressure. It comprises an outer negative pressure chamber, the operating room (Fig. 8), and within the same a positive pressure chamber, the anesthetizer's room (Fig. 9), by means of which combination it is possible to operate either under negative differential pressure or under positive differential pressure, under a combination of the two or under a change from one to the other in the same operation.

The advantage of combining two chambers to form one apparatus becomes apparent also in the feature that the operating table remains in the same location under whatever pressure the operation is performed, and that the moving about of the operating-table from inside to outside, necessary with the large European chambers, if their pressure were changed from negative to positive, or *vice versa*, is here entirely avoided. Further, there is in the new chamber ample elbow-room for the surgeon and his assistant and for an assistant to the left of the surgeon, obtained by means of a projecting head-box. The opening in the latter is closed by a rubber collar, which can be adapted to the size of the neck, and the bulging of the collar is prevented by guillotine shutters. The operator can see the face of the patient and the anesthetizer can see the body of the patient. For the latter purpose a mirror is provided, but the anesthetizer cannot see directly the field of operation proper, so that his attention is not distracted from the anesthesia, but must be given entirely and exclusively to it. The anesthetizer has the face of the patient before him, as is customary in ordinary operations, because he and his assistant are enclosed, together with the head of the patient, in the positive differential pressure chamber. The head of the patient is adjustably suspended. The anesthetizing chamber is so large that there is ample space for oxygen apparatus; it has an air-lock providing access or egress while the pressure is on and without interruption thereof.

No air-lock is needed for the operating-chamber. The pressure in the latter can at any time be raised from negative to atmospheric pressure while the differential pressure required for the operation is being maintained without interruption, so that the door of the operating-chamber leading to outside can then be opened.

The plant is so constructed that a triple reserve is provided in case of break-down. There are two independently driven sets of pumps, one for pressure and one for vacuum, so that in case of any mishap to one unit an immediate change can be made from one kind of differential pressure to the other; in case of accidents to both units a hand-pump is provided, by means of which to maintain the positive differential pressure in the anesthetizing chamber. The motors run at constant speed. The variation of the air-pressure in the chambers is effected by the manipulation of two air-valves, which are set by hand to the desired gauge readings, a matter so simple that mistakes are excluded. The valve is not of the water-column type, but simply a cock. The chamber is of knock-down construction and transportable. The structure in its entirety is very simple and there is nothing in it to get out of order.

The constructive feature distinguishing these chambers from others is the use of two different materials, metal and a fabric, for the obtaining of its two requirements, strength and tightness. Iron can offer the needed resistance to air-pressure; balloon material is air-tight. By the combination of the two into one air-tight structure, the ironwork profits to the extent that it can be treated as a light open framework, easily put together and just as readily taken apart, and that the shops building it will find in the specifications no requirement foreign to every-day structural iron routine; on the other hand, the balloon material profits to the extent that it does not have to sustain the air-pressure, that its distortion into a bulging ball is prevented, and that by the iron frame it is kept to the desired shape. In the positive pressure chamber (Fig. 10) the fabric is arranged inside of the metal frame and in the negative pressure chamber outside of it (Figs. 8 and 9).

As stated above, all the heretofore constructed apparatus can be divided into two groups, one working from atmospheric pressure downward, and one working from atmospheric pressure upward. The new chamber belongs to neither group. It is *sui generis*. In constructing it the aim has been to overcome and remove the limitation of differential pressure chambers to atmospheric pressure as the fixed basis at one end of the difference in pressure, and to enable the establishing of the basis anywhere above or below or at atmospheric pressure at will. This was accomplished by combining two differential chambers to form one apparatus.

In combining two rooms to form one apparatus the following modifications are possible:

1. The rooms may be separate.
2. The rooms may have one corner in common.
3. The rooms may have one wall in common.

In all of these cases the two rooms can be either outside of each other or one inside of the other one.

4. Two rooms may be one partly outside and partly inside of the other one.

For the purpose in hand the combination of two separate rooms, one inside of the other one, was selected.

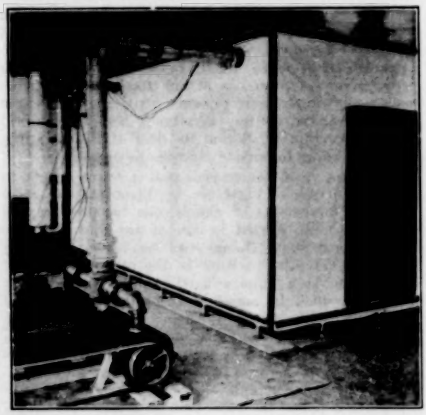

Fig. 8.—Outside view of universal differential pressure chamber (first experiment).

But several of the other modifications will have their use on occasion.

As regards the air-pressure in these rooms the following combinations can be made.

1. The pressures in both chambers deviate in the same direction from open air:
   - A. Inner positive chamber combined with outer positive chamber.
   - B. Inner negative chamber combined with outer negative chamber.
2. The pressure in both chambers deviate in opposite directions from open air:
   - C. Inner positive chamber combined with outer negative chamber.
   - D. Inner negative chamber combined with outer positive chamber.

Positive chamber in negative chamber (2-C) is the combination which I have built and which I have in use at the Rockefeller Institute in New York. It was selected for construction, first, because it enables the nearest approach to operating in open air by building up the differential pressure of half positive and half negative pressure; second, because the anesthetizing-room can be used independently as a positive pressure chamber, and, third, because the chamber can readily be transformed into negative chamber in negative chamber (1-B) by simply reversing the motor of the pump that ventilates the anesthetizing room, whereby the pump is converted from a blower into a suction pump. If the valves are now set to produce a higher rarefication of the air in the operating-chamber than in the anesthetizing room, the latter remains, relatively speaking, a pressure chamber, and, by maintaining the proper differential, the thorax can safely be opened with negative pressure over the mouth as well as over the open

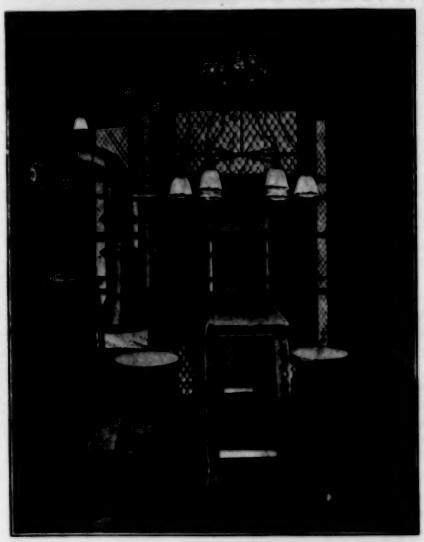

Fig. 9.—Inside view of universal differential pressure chamber (first experiment).

thorax. On May 15, 1909, an operation was performed under such conditions with a local barometric pressure of 760 mm. Hg. and 744 mm. over the open thorax and 750 mm. over the mouth of the patient—which is equivalent to doing the operation at a higher altitude.

This kind of work may become of importance in operating on patients afflicted with pulmonary tuberculosis. Consumptives are sent to higher altitudes for treatment; there may, therefore, be something in lifting a patient during the operation to an altitude many hundred feet above the one where the operation actually takes place and in lifting him frequently back to that altitude in the after-treatment. It may be that internists, too, will find such chambers useful in the treatment of pulmonary diseases.

By merely ventilating the outer room at atmospheric pressure and putting the inner room under increased pressure the two combined chambers become simply a positive differential pressure apparatus.

Thus in this particular combination of rooms an operation can be performed under all of the following conditions:

1. Under positive differential pressure.
2. Under negative differential pressure.
3. Under part positive, part negative differential pressure.
4. Under a gradual change from positive to negative differential pressure, and *vice versa*.
5. Under a repeated change from positive to negative differential pressure, and *vice versa*.
6. Under negative differential pressure at an altitude above sea level higher than that of the place where the operation is performed.
7. Under negative differential pressure same as 6, but at gradually or repeatedly changing altitudes.

The foregoing enumeration comprises all the various conditions under which differential pressure operations can occur, and this apparatus is, therefore, named a "universal differential pressure chamber." In contradistinction to it the narcotizing-room, when independently used, is named a "positive differential pressure chamber," because it must always and under all conditions have a higher pressure inside than outside of it.

The combination, inner positive chamber in outer positive chamber (1-A), is not likely to be used. Its effect would be equivalent to lowering the open thorax of the patient into a shaft below the surface of the ground and depressing the mouth of the patient still further.

On the other hand, the remaining combination, negative chamber in positive chamber (2-D) is again of importance, though not in thoracic surgery, because negative pressure at the mouth and positive pressure at the open thorax would accentuate the pneumothorax. But in brain surgery this combination of chambers will find its place. By means of it the blood can be drawn away from the head and by varying the pressure we can control the quantity of blood thus temporarily withdrawn from circulating through the heart. In this combination the patient's body is put into the inner room.

The positive differential pressure chamber described in this paper (Fig. 10) was built to withstand hard usage. It has been put up and knocked down many times. It was first erected in the iron works, then knocked down, transported to another factory for completion and assembling with parts constructed elsewhere. It was there erected and tested, then knocked down and transported to the Rockefeller Institute; there erected, used in operations on dogs, knocked down and transported to the German Hospital in New York; there erected, used in operations on patients, knocked down and transported to Philadelphia; there erected in the Jefferson Medical College Hospital for demonstration before the American Surgical Association, knocked down and transported back to the German Hospital in New York, and on arrival there went together with as little trouble as it did when first completed.

A structure has to be strong and solid in all its parts to endure such treatment without becoming dented and twisted and thereby troublesome and expensive by needed repairs. A chamber built to remain at one place may be built lighter. But the rough handling that this German Hospital positive differential pressure chamber in its many migrations was subjected to by truckmen and on the railroad without suffering damage thereby proves its fitness for use in war, and it was partly with the object of testing it for military requirements and under something like war conditions that this chamber was so many times knocked down, carted from place to place and re-erected. On an average it took one man and a helper about one hour to knock it down and the same number of men about four hours to erect it again ready for use. The time can probably be reduced should the work be done by military men of the sanitary corps, specially drilled for the purpose.

Mention should not be omitted of the fact that with the positive differential chamber artificial respiration was produced in a case of collapse by rhythmic movements of the valve handle, increasing the pressure quickly to 12 mm. Hg. and lowering it again to atmospheric pressure.

The chambers are cleaned by using the suction pumps as a vacuum cleaner, by means of which such dust as may be there is removed from the wire frames of walls and ceiling. The floor of the negative chamber is solid and so constructed that it can be scrubbed. In the final construction of the chamber its walls and ceiling will be similarly arranged.

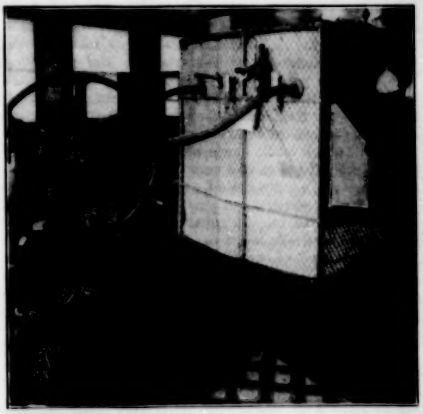

Fig. 10.—Positive differential pressure chamber (first experiment).

Formalin vapors are used for disinfection, which are then ventilated off by the pumps.

When I began to use the chambers, the question arose in my mind: How far can we go in exposing ourselves to such positive and negative pressures? Where is the danger-line? Inquiry developed the fact that even should the negative chamber be exhausted to a differential pressure of 50 mm. Hg., thus being strained to the limit of its capacity, we would, in exposing ourselves to that differential, still be within the limits of our possible every-day experience, as barometric fluctuations of 50 mm. Hg. are nothing unusual in our climate.

On this subject a letter was received under date of Jan. 7, 1909, from the central office of the U. S. Weather Bureau at Washington, D. C., which reads in part:

> The height corresponding to a change of pressure from 760 mm. to 710 mm. varies with different temperatures of the air column. The change of 50 mm. pressure at sea level with a mean temperature of 0 C. would correspond to an elevation of 1,786 feet, at 15 C. to 1,881 feet, and at 30 C. to 1,978 feet. The range of the barometer at New York is more than 50 mm.

The differential pressures used in thoracic surgery seldom exceed 7 or 8 mm. Hg., corresponding to a dif-

ference in altitude between 250 and 300 feet; that is to say, the patient's mouth is lowered about 300 feet below his opened thorax. The anesthetizer, however, as well as the surgeon and his staff are not under differential pressure at all; their entire bodies are under one pressure only. Eight mm. Hg. is equivalent to a pressure of about one-sixth of a pound per square inch. In caisson foundations for bridges and tall buildings workingmen are required sometimes to work for hours at a time under air pressures of thirty and more pounds to the square inch, without detriment to their constitutions, which indicates that we are far removed from danger when working in our chamber under positive pressure. As to vacuum I have no such records to offer. We ourselves have been frequently under 16 mm. Hg. negative pressure, drawing the pressure down rapidly, without any perceptible detriment, though feeling a slight pressure on the ear-drums, which, however, disappeared after swallowing once or twice. Hints in this direction can probably be obtained by looking up, for instance, the practice with pneumatic chambers used in bathing institutions; but time has been lacking to do that for this paper.

Again, if the differential pressure in the universal chamber is composed of part vacuum and part pressure, only the patient is exposed to the full differential, while all others are exposed only to the component fractions thereof, the anesthetizer to the positive fraction and the surgeon and those with him to the negative fraction, which still more reduces any possibility of detrimental effects on the users of the chamber.

It was to be supposed that a differential pressure composed of part positive and part negative pressure would act the same as one of equal magnitude but entirely positive or entirely negative. After several operations performed under such conditions, it can now be stated that it does act the same, at least as far as keeping the lungs inflated is concerned. But there seems to be this difference, that abdominal and thoracic breathing come more or less into play according to the variation of the components. Observations along this line are still in progress. Further, there seems to be a difference in the effect of the narcotic under positive and negative pressure. With increasing vacuum component the anesthesia apparently becomes deeper and it becomes less deep when the positive pressure component is increased, which is equivalent to stating that a smaller amount of the narcotic is required under negative pressure to produce a satisfactory anesthesia.

In conclusion, a word about the history of the new apparatus. The studying up, designing and constructing of these chambers has occupied my brother and myself since May of last year, my brother devoting himself entirely to the matter. The work of construction was begun in November of last year. A start was made with the smaller and less expensive apparatus on which to make our mistakes and such blunders as are liable to happen when plodding into the unknown. Therefore, the building of a positive differential chamber was first attacked. It was tested on December 23, was found to work all right and was first used in an operation at the Rockefeller Institute on January 8 of this year. It came up to requirements in every way, so much so that the building of a large universal differential chamber was immediately taken in hand.

It was not carried to completion as expeditiously as the first one, for several reasons. The vital question of dimensions was an open one for a long time, because the finding of the best adapted rooms in the German Hospital, where the chamber was to be placed, offered considerable difficulty. Then, of course, the thing had first to be invented; the many roads leading to Rome had to be gone over, all the many details had to be worked out and tried out and everything had to be boiled down from the complicated to a condition of extreme simplicity in order to make it trouble-proof. Further delays occurred in manufacturing the apparatus. There is practically nothing in the chamber that is standard; almost everything is special and had to be made to order. Difficulty was encountered to find manufacturers at all willing to let such special work interfere with their routine business.

Finally, on May 7, the universal chamber stood completed in the Rockefeller Institute; and a lung extirpation was performed therein on that day with the following gauge record:

| Time. | | Pressure MM. Hg. | | Time. | | Pressure MM. Hg. | |
|---|---|---|---|---|---|---|---|
| Hr. | Min. | Negative. | Positive. | Hr. | Min. | Negative. | Positive. |
| 4 | 27 | 0 | 0 | 4 | 44 | 0 | 6 |
| " | 31 | 6 | 0 | " | 56 | 1 | 5 |
| " | 32 | 5 | 1 | " | 57 | 2 | 4 |
| " | 34 | 3 | 3 | " | 58 | 3 | 3 |
| " | 37 | 4 | 2 | " | 59 | 4 | 2 |
| " | 41 | 3 | 3 | 5 | 00 | 5 | 1 |
| " | 42 | 2 | 4 | " | 03 | 6 | 0 |
| " | 43 | 1 | 5 | " | 10 | 0 | 0 |

Instructions had been given to the man at the valves to make frequent changes in the pressure components at

Needle in position for injection of middle branch. Case 46.

ILLUSTRATING ARTICLE BY DR. PATRICK

short intervals, so that the effect of the changes might be observed. At 4 hours 44 minutes, when atmospheric pressure prevailed in the operating-chamber, the door to outside was opened and one of the guests left, the operation meanwhile going on without interruption. It will be remembered that the negative chamber has no air-lock. During the next following operation the house telephone suddenly rang outside the chamber, while the gauge recorded 6 mm. Hg. vacuum inside. The vacuum was raised to atmospheric pressure, the door opened, the telephone attended to, the door closed and the vacuum of 6 mm. restored, all without interruption of the operation or disturbance of the differential pressure.

As stated above, this is no longer a Sauerbruch chamber or a Brauer apparatus. It goes beyond what they conceived. Neither of them can build up the differential of part positive and part negative pressure or go from positive to negative pressure, or *vice versa*, in the course of the same operation. Even in physiologic work, investigators have heretofore never put a dog on which they experimented, first under positive and then under nega-

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tive differential pressure in the same apparatus. It was always one dog under positive and another under negative differential pressure. An element of uncertainty is thereby carried into their conclusions regarding the relative merit of the two kinds of pressure.

This American-built apparatus enables us for the first time to study the behavior of one and the same animal during one and the same operation, under both kinds of differential pressure, under a change from one to the other, and also under a change of the altitude above sea level. What is more important, it enables us also to study pathologic conditions of man in the same thorough manner, excluding all guesswork, and to find the indications for the pressures best adapted to and safest to use in the many varying degrees of related diseases of human kind.

700 Madison Avenue.

[EDITOR'S NOTE: THE THREE PRECEDING ARTICLES ARE PART OF A SYMPOSIUM ON THORACIC SURGERY WHICH WILL BE CONCLUDED NEXT WEEK BY THE ARTICLES OF DRS. POWERS AND BECK AND THE DISCUSSION.]

## SEVENTY-FIVE CASES OF TRIFACIAL NEURALGIA TREATED BY DEEP INJECTIONS OF ALCOHOL*

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CHICAGO

Two years ago I reported sixteen cases of trifacial neuralgia treated by deep injections of alcohol,[1] and four months later I briefly reported seven additional cases.[2] The method was new, scarcely known in this country; and, further than the fact that injections into the nerve instantly stopped the pain, not many definite statements could be made either for or against it, although it promised well. Even now it is so unfamiliar to the medical public that, having employed it for nearly three years, I feel that my results should be reported.

Needless to say, by trifacial neuralgia I mean neuralgia of one or more branches of the fifth or trifacial nerve; not migraine, which often is called neuralgic headache; not sinus disease; not anything but classical tic douloureux. That the patients with this malady suffer horribly is known to all. That a treatment simple, effective and devoid of danger is a great desideratum needs no emphasis. While the deep injection method is by no means ideal, it is relatively simple, it certainly is effective in relieving the pain, and it is practically free from serious danger. As a radical cure it can not compare with complete removal of the Gasserian ganglion, but, except in a very few and peculiarly skilled hands, the latter operation is difficult and dangerous—very dangerous, indeed, for the majority of operators. To mention treatment by drugs, electricity, heat, etc., is to note the ultimate futility of these measures in the vast preponderance of cases. The various peripheral operations on the several branches of the nerve, including the Abbé operation of dividing them peripheral to the ganglion, have all met a measure of success, but all require an anesthetic, and those which are neither difficult nor dangerous generally give relief for only a brief period. Concerning the deep injections of alcohol I have no thesis to maintain. I wish simply to state my results and to add a few hints, the fruit of experience.

To redescribe the technic[3] seems unnecessary, but I may state that the injections are made with a straight needle about 10 cm. long, 1.5 mm. thick and fitted with a stylet or obturator, the blunt end of which is flush with the needle-point. The sharp point is used to puncture the skin, after which the stylet is pushed home, making a blunt instrument for the remainder of the penetration. Both Brissaud and Sicard, and Lévy and Baudouin have discarded the stylet, using a more slender and sharp needle. I have tried the latter, but prefer the former. The needle is introduced at the lower border of the zygoma, the object being to reach the inferior maxillary division of the nerve at its emergence from the foramen ovale (about 4 cm. deep) and the superior maxillary as it leaves the foramen rotundum (about 5 cm. deep). Deep injections for the supraorbital branch I have abandoned as being too hazardous. When an injection of this branch is needed, which is not very often, I use a "peripheral" injection at the supraorbital notch. In a few cases I have also used a "peripheral" injection at the infraorbital foramen.

The solution used is about 85 per cent. alcohol (not absolute) with four grains of cocain to the ounce. Of this, about 2 c.c. are introduced each time. Morphin and chloroform, formerly used in the solution, I have abandoned, and I also have stopped using 75 per cent. alcohol for the first injection.

As before intimated, this paper is simply a record of results, but tabular statements and summaries sometimes conceal almost as much as they reveal, and so I prefer to make a report of each case, very brief but accurate, so that the reader may come to his own conclusions. An attempt has been made to follow the course of all cases, and when not otherwise stated this has been done up to May 1, 1909, two years and nine months after my first injection. For obvious reasons the first twenty-three cases, already reported elsewhere, are included here.

Perhaps it may not be amiss to add that the cases were all unmistakable ones of tic douloureux; that some of them were frightfully severe; that most of the patients were quite disabled by the disease; that all had tried other forms of treatment; that a considerable number had undergone cutting operations; that some were very old and feeble, and that in no instance have I declined to administer the treatment on account of the severity of the case or of organic complications.

CASE 1.—Aug. 2, 1906. Woman, aged 43; neuralgia of eight or nine years' standing. One injection each for middle and inferior branches. No return in two years and nine months.

CASE 2.—Sept. 21, 1906. Woman, aged 49; neuralgia for sixteen years, middle and inferior branches; bad case. Five injections; complete relief for four months; slight return in lower branch; three injections; relief. Five months later a few slight pains in middle branch; 2 injections; immediate relief. Seven months after this or a year after the recurrence in the lower branch, this division again showed signs of returning pain. Two injections were made and, although apparently both missed, there has been no further pain in this branch. The last week in June, 1908, a year after the last injections for the middle branch, the patient had a few slight pains in this branch and June 30 received an injection. She has had no more pain; that is, with reinjections, relief for two years and seven months.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. THE JOURNAL A. M. A., Nov. 9, 1907, xlix, 1567.
2. Cincinnati Lancet-Clinic, Dec. 28, 1907.
3. See papers in THE JOURNAL A. M. A., Nov. 9, 1907.

CASE 3.—Dec. 17, 1906. Man, aged 51; neuralgia nine years, two branches; six injections; complete relief. Several months later he was still free from pain. No recent report obtainable.

CASE 4.—Oct. 10, 1906. Man, aged 62; neuralgia for over three years, middle and inferior branches; had been operated on twice; had double antrum and frontal sinus disease. Six injections, complete relief; no recurrence in two years, six and a half months.

CASE 5.—Jan. 1, 1907. Woman, aged 62; neuralgia for four years. Five injections for two branches, no pain after first injection. Of late some return of pain. Patient very nervous and has numerous complaints. Difficult to say whether or no there is return of the neuralgia, but I think there is, as sometimes eating and talking cause pain. Still, she is practically well so far as the neuralgia is concerned, two years and four months after treatment.

CASE 6.—Jan. 19, 1907. Woman, aged 44; neuralgia about six and a half years. Had had two operations. Eight injections for two branches. Complete relief until June 1, then two slight pains; one injection for lower branch; no more pain until Oct. 17, 1908; then again two slight pains in same area. A single injection; no more pain. With reinjections, relief for two years, three and a half months.

CASE 7.—Mar. 13, 1907. Woman, aged 50; neuralgia two years, two branches; bad case; three injections; instant relief. Patient remained well for eight months; then she developed an alveolar abscess in the area of the previous pain. After the tooth was extracted the pain continued and three injections failed to do more than mitigate her suffering. An *x*-ray picture then showed that the root cavity communicated with the dental canal; that is, the inflammation involved the nerve. Treatment of the cavity was undertaken by Dr. Gilmer and the pain subsided. In May, 1908, pain began again, apparently starting from a filled molar. The tooth was extracted with relief for some days. Then pain returned, when treating the alveolar cavity again gave relief. Through the summer patient was almost free from pain, but about November 1 it returned and she received three injections, none causing sufficient analgesia to be satisfactory to me. No pain until about March 1, 1909. Injections March 15 and 17, no more pain. With reinjections, relief (not quite complete) for two years, one and a half months.

CASE 8.—Mar. 15, 1907. Woman, aged 23. Injections four times for inferior branch, without reaching the nerve. No relief. Patient left and later was operated on by Dr. Harris.

CASE 9.—Mar. 19, 1907. Man, aged 60; neuralgia for five years. Five deep and one peripheral injection. Complete relief. Seven months later patient still free from pain. Unable to get more recent report.

CASE 10.—April 19, 1907. Woman, aged 75, very feeble, bedfast, neuralgia thirteen years. Seen but once. Single injection; relief at once. There have been two recurrences. Each time patient's own physician has repeated the injections with prompt relief and she is now well, with "no indication of return." With reinjections relief for over two years.

CASE 11.—April 23, 1907. Woman, aged 38; neuralgia ten months. Seen but once; single injection; immediate relief. Six months later patient had an occasional slight dart of pain. No recent report.

CASE 12.—April 28, 1907. Woman, aged 54; neuralgia two years. Two injections. She has had an occasional slight twitch of pain but considers herself too well for further treatment, two years since injections.

CASE 13.—May 5, 1907. Woman, aged 69; neuralgia for one year, first in middle, then in lower branch. One injection stopped the pain and patient declined further treatment until its return a year later, when her own physician repeated the injections (three), since which time she has had no recurrence. Period of relief with reinjections, two years.

CASE 14.—May 16, 1907. Man, aged 60; confirmed neuropath; neuralgia for fifteen years; three branches; patient had had three operations. Received a deep and a superficial injection with notable relief. His physician continued the injections and he was completely relieved for a time and practically relieved until Dec. 27, 1908 (one year and seven months), when pains began to be severe. Feb. 3, 1909, I gave him an injection; three days later his physician repeated it and he is again free from pain (May 19, 1909).

CASE 15.—May 17, 1907. Man, aged 62; neuralgia for five years, a very severe case. Received three injections for inferior and one for middle branch. Suffering relieved but still occasional twinges. Patient was compelled to leave city; Dec. 9, 1907, returned, having had some pain for three months, but not nearly so severe as before treatment; was given two injections with immediate relief. Two months later pain recurred. Patient given six injections. Relief was complete, but by October there were signs of recurrence and he received two injections. No more pain. Period of relief with reinjections, one year, eleven and a half months.

CASE 16.—May 30, 1907. Man, aged 42; neuralgia for three months. Pain limited to supraorbital area but started by touches, etc., in area of infraorbital distribution. Patient received a deep orbital injection with some relief. Not caring to repeat this deep injection, I gave him a peripheral injection for the supraorbital and four or five deep injections for the middle branch. The latter was hard to reach, but finally he was completely relieved and has remained well. Just lately he has had an occasional slight sensation which seems to presage a return of the trouble.

CASE 17.—June 12, 1907. Woman, aged 82. Neuralgia began in right inferior branch nineteen months before above date; for last year had also involved middle branch. As patient was feeble the depressing effect of the pain and the inability to eat had exhausted her to a marked degree. She received one injection for the inferior and one for the middle branch, which at once relieved her. I advised further injections but she declined and with the exception of a few slight twinges at rare intervals she has remained well, one year and eleven months.

CASE 18.—June 25, 1907. Woman, aged 46. Neuralgia began ten years before above date in middle branch, radiating into supraorbital. Operation five years ago with no relief. I made two injections but failed to reach the nerve and the patient passed from observation.

CASE 19.—July 1, 1907. Woman, aged 68; neuralgia of left lower branch for three years. I made two injections but missed the nerve both times and she returned to her home with practically no benefit.

CASE 20.—July 3, 1907. Woman, aged 46; neuralgia for five years, principally in left lower branch. In this case I also failed to strike the nerve in two trials and the patient left.

CASE 21.—Sept. 11, 1907. Woman, aged 54; neuralgia in right lower branch began ten years before above date but until the last five weeks had not been very severe. An injection was given with immediate though only partial relief, and as I could not guarantee a cure with one more injection the patient decided to take no more.

CASE 22.—Sept. 13, 1907. Man, aged 77; advanced atheroma, senile heart; word-blind since an attack, evidently cerebral thrombosis, four months before above date. Neuralgia of left lower branch began twenty years before and had remained confined to this branch; from the beginning very severe. As talking immediately started the pain he was obliged to give up his profession (that of clergyman) and had been an invalid for the last twenty years. On account of the frightful pain caused by eating he often became weak and emaciated for want of nourishment. For several months he waited for a sufficient lull in his suffering to enable him to make the trip to Chicago. He was given three treatments and has not had a single pain since the first injection, one year and seven and a half months ago. In spite of his age and cardiovascular condition he has gained in strength and weight, and enjoys life.

CASE 23.—Sept 28, 1907. Woman, aged 65; supraorbital neuralgia began two years before above date. At times very severe. After a peripheral injection of the supraorbital nerve it was found that pain could be started by touches or rubbing the skin in the infraorbital area, so patient was given one deep and one peripheral injection for the middle branch. This stopped all pain and she has had none since, one year and seven months.

CASE 24.—Oct. 23, 1907. Man, aged 66. Pain began about twelve years ago in right middle branch, for the last six

months shooting into supraorbital region. Patient took about one-half grain of morphin daily. I gave him an injection for the middle branch with instant relief. He slept all night without morphin and ate breakfast the next morning without pain for the first time in two years. I repeated the deep injection and also gave him a peripheral one for the supraorbital. I advised further treatment, as the analgesia was not marked, but he left for home. In about two weeks the pain returned and he suffered for a month. After that he was more comfortable for some time but is now having pain again and is taking morphin.

CASE 25.—Oct. 30, 1907. Man, aged 73; neuralgia began fifteen years before above date in right upper lip but for a long time the lower branch had been involved as well. A bad case. I found the nerves very hard to reach. Patient received five injections for the middle branch and four for the lower, most of them misses. When he left for home he was having practically no spontaneous pain, although it could still be started by vigorously rubbing the face; but he said that he had not rubbed his face like that for ten years. Five months later he reported that he had had no pain in the middle branch area but was having considerable in the lower jaw, though not nearly so severe as before treatment. May 1, 1909, he reports that he has been suffering severely for a month.

CASE 26.—Nov. 4, 1907. Woman, aged 62; began to have neuralgia eleven years before above date. Pain in middle and lower branches; numerous remissions. She received three injections for the middle and one for the lower branch with immediate relief and has had practically no pain since; that is, in eighteen months.

CASE 27.—Nov. 6, 1907. Woman, aged 56; neuralgia for last six years and no free intervals. Infraorbital and inferior maxillary branches involved. Two injections for middle and one for inferior branch. None of these injections was entirely satisfactory from my point of view, but the pain was stopped, the patient felt "fine and dandy" and insisted on returning to her home. She gained six pounds in the next two weeks. Jan. 28, 1908, she returned, having had some pain for several weeks, though not nearly so severe as before the treatment. I gave her two injections for lower and three for middle branch with complete relief for seven months. She has had no further treatment. One of the injections for the middle branch caused a slight vertical diplopia which disappeared in two or three hours.

CASE 28.—Nov. 12, 1907. Woman, aged 66; nervous, poor general health. Neuralgia of twelve years' standing, with intermissions, of left middle branch. Four years ago antrum opened, no relief. Patient received a single injection with immediate relief and has had no pain since.

CASE 29.—Dec. 5, 1907. Woman, aged 58; neuralgia began three, possibly five, years before above date, right middle branch. Patient has arteriosclerosis, mitral regurgitation, cardiac hypertrophy and albumen in the urine. She received four injections, none of which was entirely satisfactory to me, but there was no return of pain for more than a year (Jan. 5, 1909). Her physician then gave her two injections. The second one relieved the facial neuralgia but the patient developed pain "all over the body" and her general health has failed. More definite details not obtainable.

CASE 30.—Dec. 27, 1907. Man, aged 72. Pain began five and a half years before above date in left lower branch. About three weeks before coming to me his physician had given him three deep alcoholic injections with no benefit. I gave him three injections (the first of which missed) with complete relief. He remained free from pain until about July 1, 1908 (six months), when it began to return, and in November, 1908, his physician gave him two injections with considerable but not complete relief. In April, 1909, his physician again injected with some benefit.

CASE 31.—Dec. 28, 1907. Woman, aged 62. This proved to be my most disastrous case up to this time. Pain began in right middle branch in the spring of 1905. For a year it was not very bad, then gradually grew worse, and for the last two or three months had been very severe. Six or eight weeks before date of treatment pus was discovered in the antrum but treatment of this by an expert afforded no relief. I injected the middle branch, but very imperfectly, and caused not only a deep hematoma but also a marked paresis of the external rectus, causing diplopia. Three days later the sixth nerve palsy was better, I repeated the injection and again failed properly to reach the nerve. Three days after this, under gas anesthesia, I did a third injection, this time with more success, as the analgesia was marked, and there has been no neuralgia since. But this injection rather increased the palsy of the sixth nerve so that the eye could not be turned outward beyond the middle line. The analgesia, too, involved the eyeball and caused a peculiar and uncomfortable feeling. The diplopia disappeared in about two months and in about two months more a careful examination by Dr. Burch of St. Paul, to whom I am indebted for the subsequent history, showed no trace of heterophoria. But, probably owing to anesthesia of the cornea, there remained a persistent tendency to irritation of the eye and to keratitis, requiring careful attention. In June, 1908, Dr. Burch informed me that the eye was doing well. Later in the summer the patient developed a corneal ulcer which healed but left an opacity. "Sensation in the cornea is still much diminished and there is some interference with normal lachrymation in this eye, with a catarrhal conjunctivitis which she keeps clean. There is no return of the tic douloureux." (Dr. Burch, May 16, 1909).

CASE 32.—Dec. 30, 1907. Man, aged 52; neuralgia of two years' standing, mostly in left lower branch, though middle one is involved. Patient received two injections for the former with complete relief. I meant to treat the middle branch as well, but the patient suddenly left the city. For ten and a half months he was entirely free from pain. On Jan. 12, 1909, I injected the left lower branch with partial success. Immediately after this treatment the patient disappeared (I believe an alcoholic flight) only to return on January 24 for further treatment. Owing to his inebriated condition this injection was difficult and unsatisfactory. I declined to treat him further until he sobered up and he left.

CASE 33.—Jan. 13, 1908. Man, aged 59. Neuralgia of left middle branch of ten years' standing and severe. Injected middle branch with immediate relief but the analgesia was slight and transient so I repeated the injection the next day but again failed to reach the nerve properly. The patient had to leave town. He was free from pain about six weeks; then it began to return. Over a year later, having received no treatment, he was suffering less than before the injections.

CASE 34.—Jan. 18, 1908. Woman, aged 69. Severe neuralgia right inferior branch of about eight years' standing. Between May, 1905, and Nov. 28, 1907, five peripheral operations had been performed. The last time the operator had gouged open nearly the entire dental canal and scraped it. This gave no relief; rather made patient worse. I made an injection but the patient would not or could not hold still and I missed the nerve. Three and six days later I repeated the operation under gas with good results and she has had no pain since, one year and three months.

CASE 35.—Jan. 22, 1908. Man, aged 74; chronic nephritis, arteriosclerosis, enlarged heart. Typical neuralgia, lower branch, of ten months' standing. Two injections. No pain whatever until the following October, nine months, when there appeared some slight pains in the middle branch which had not been injected. These pains never became troublesome and the patient died, March 14, 1909, of uremia.

CASE 36.—Jan. 30, 1908. Man, aged 53. Pain began ten years before date of treatment in the right middle branch. Eight years before above date he had a very thorough peripheral operation which relieved him for four years. Then the nerve was cut off at its emergence from the skull at the foramen rotundum. This again gave relief for four years. Pain returned about eight weeks before I treated the patient and was as severe as ever. I was not at all sanguine as to results in this case because the nerve had been cut just where I would want to inject it and there must have been cicatricial tissue at this point. Furthermore, the zygoma had been cut across and its relations were changed. In addition, the patient had a large head and a very large, fat face (interzygomatic measurement quite six inches). I was fortunate, however, in reaching the nerve the first time and patient had instant relief. I repeated the injection five days later and he has remained entirely free from pain, one year and three months.

CASE 37.—Feb. 18, 1908. Man, aged 34. Apparently his neuralgia began when he was 7 years old. For the first four years it troubled him for only one or two weeks each year and was confined to the right lower branch. Gradually the trouble became worse and finally invaded the middle branch. From March, 1898, to some time in 1905 he was operated on eleven times, but two of these operations were for a salivary fistula caused by previous operation. A marked facial paralysis was the result of one or more of the operations. At one time the patient took as high as 15 grains of morphin daily. When he came to me he said he was taking only about ⅔ to 1 grain daily. From February 18 to April 1 he received three injections each for middle and inferior branches. The first injection for the middle branch failed, but after the second he had no pain and there was no return until April, 1909. The patient said that he had "just lived in Paradise this last year"—the first year he could remember during which he had been free from pain. Injections were made April 27 and May 11, 1909, since which there has been no pain, but the analgesia is not sufficiently marked.

CASE 38.—Feb. 26, 1908. Man, aged 60. Neuralgia, right lower branch, of nearly three years' standing. In August, 1907, lower jaw was trephined and nerve resected, which relieved patient for five months. An injection at once relieved him except for an occasional "prick." Two more treatments were given and several months later he was said to have no return of pain. No recent report.

CASE 39.—March 3, 1908. Woman, aged 73. Pain began thirteen years before above date in right lower branch; eight years before same date extended to middle branch and now involved all three branches. I injected the middle branch with instant relief but evidently did not get the nerve well, as the pain returned the next day. No further injections have been made.

CASE 40.—March 18, 1908. Man, aged 51. A very severe case of ten years' standing. About four months after the onset the antrum was operated on and the infraorbital nerve is said to have been pulled out. Six weeks' relief. In July, 1907, peripheral operations were done on middle and inferior branches by a distinguished surgeon, which afforded considerable relief, but for two months only. The pains were so easily started and so severe that patient could not endure the lightest palpation of the bony landmarks, and washing the face was not to be thought of. Even the ordinary involuntary winking started the pains. He was given gas and the middle branch injected. Immediately after the injection the middle branch area could be rubbed without pain and patient drank a glass of ice water in comfort, feelingly remarking that that was the first glass or cup that had touched his lips for months. He received another deep injection for this branch and three peripheral injections for the supraorbital. Relief was complete until Jan. 25, 1909 (ten months), when slight pains began. Injections were made February 2 and 5 and the patient has remained well.

CASE 41.—March 24, 1908. Man, aged 70. Typical neuralgia began in right middle branch twenty years before above date. At times lower branch had been involved. In this case I had trouble in reaching the nerve. After the first injection he was notably better, but after three treatments in five days he was not entirely free from pain and the analgesia was very slight. As the patient was compelled to return to his distant home I gave him two peripheral injections which entirely relieved him. A year later he was having some pain and had had for some time but not nearly so severe as before treatment.

CASE 42.—March 25, 1908. Man, aged 45; neuralgia began three years before above date. Pain probably limited to lower branch but can be started from middle area. Not a very bad case and patient was given the castor-oil treatment with no effect. On April 6 the middle branch was injected and on April 8 and 11 the inferior one. He was at once relieved and remained well until early in March, 1909 (eleven months), when he began to feel slight "jerks" of pain. Injection given March 10 and patient has been well since.

CASE 43.—April 18, 1908. Woman, aged 41; neuralgia in left middle branch began two years before the date of treatment, extending to supraorbital three months before this date. This patient received five deep injections for the middle branch and a peripheral injection of superior branch with complete relief, but analgesia in the middle area was not complete and four months later pain began to return. At present (May 8, 1909) patient is having pain in middle and inferior areas, though not so severe as before the treatment.

CASE 44.—April 20, 1908. Woman, aged 59; neuralgia for eight years, involving middle and supraorbital branches. She received a deep injection of infraorbital and peripheral of supraorbital which at once stopped all pain. Contrary to my wishes, she returned to her home, but has had no recurrence as yet, one year.

CASE 45.—April 28, 1908. Man, aged 54. Six years before above date pain began in right lower branch and soon spread to middle as well. Within two weeks patient received four injections for the inferior branch and, although the analgesia was unsatisfactory, he was relieved and has remained well except for occasional slight "reminders," one year.

CASE 46.—May 9, 1908. Colored man, aged 48. Five years before above date neuralgia began in right infraorbital area. Three years later antrum opened, no result. The middle branch was injected with instant, almost complete relief, but patient received three more injections with complete relief. After the second and fourth injections there was paresis of the abducens which disappeared in a few days. Four months later pain began to return; two injections, relief for six months; then patient was given four injections, which again relieved him. This was a difficult case. The *x*-ray picture (page 1986) shows needle in position for injecting middle branch.

CASE 47.—May 14, 1908. Woman, aged 53. A severe case of ten years' standing, middle and superior branches involved. For the last five months there had not been an hour's respite, day or night. Deep injection of middle branch and peripheral of upper branch at one sitting. The pain ceased at once but in the next two weeks patient was given two additional injections for the middle branch. About the end of August she began to be annoyed by pruritus in the supraorbital area and on September 26 I injected this nerve, hoping to stop the itching. There was not instant relief but gradual improvement. Apparently this injection caused alopecia in a small wedge-shaped area at the hair margin, but the hair soon grew again. About November 1 patient began to have pain, this time apparently starting from lower branch, which never had been treated. It was not bad and nothing was done until Jan. 24, 1909, when I injected inferior and middle branches with instant relief and the patient has remained practically well, though she has some discomfort of some sort. From her letter it is impossible to say whether she has any neuralgia or not.

CASE 48.—May 17, 1908. Man, aged 36; neuralgia, middle branch, began four years before date of treatment; during last three years also occasionally in inferior branch and for last eighteen months pain sometimes started by touches, etc., in area of supraorbital. The middle branch in this case was very hard to reach. Patient received five injections at intervals of three to five days, and while there was some relief from the earlier ones the last injection was the only one which got the nerve properly. He received one peripheral injection for the supraorbital. The second deep one caused a very slight paresis of the sixth nerve which disappeared in a day or two. He has remained well.

CASE 49.—June 2, 1908. Woman, aged 57; neuralgia for last ten years, middle and inferior branches, sometimes radiating into supraorbital. She received three injections, one for the middle (not a very good one), two for the inferior branch. After the first injection she slept all night; the first time in many years. Relief was complete until late in December, when pain returned in lower branch. Injections of this branch made Jan. 7 and 10, 1909, relieved her and she has remained well.

CASE 50.—June 3, 1908. Man, aged 76; physically senile, enlarged prostate, marked atheroma and a bad heart. Neuralgia of right middle branch for last fifteen years. Injected June 4 and 6. Although the pain ceased entirely the analgesia was not sufficient to satisfy me. Contrary to my wish the patient returned to his home. Within two weeks he was again having some pain. On June 26 I again injected and caused a free deep hemorrhage. Swelling below and above the zygoma was marked and patient complained of headache, evidently

caused by the pressure. This pain over right side of head lasted about thirty-six hours and the patient felt weak and "knocked out." The pulse was irregular and none too strong and it was five days before patient felt able to make the trip to his home, some six hours distant. He has had no return of pain and "has good health for one of his advanced years." But apparently the pressure of the hematoma was too much for his diseased vessels and poor heart, as the injection was followed by some necrosis of the hard and soft palate and I infer from his physician's letter that a molar tooth was also lost. These lesions healed, leaving no bad effects except slight stiffness of the jaw joint.

CASE 51.—June 4, 1908. A very nervous and delicate woman of 73; apparently had something like neuralgia fifty, forty and thirty years ago; each time for several weeks. Present trouble began three or four years before above date; now limited to right lower branch. Injections June 5 and 7 with some relief, but far from complete. Patient decided to return to her home. Aug. 6, 1908, her physician reported: "Her face is much better, she is fleshier and her general appearance is 50 per cent. improved." She remained "very much better," though not entirely free from pain, until about April 1, 1909, when she again began to suffer severely.

CASE 52.—June 14, 1908. Man, aged 75; neuralgia for twenty-five years; for the last ten years very severe and for the last five years nearly continuous. Middle and inferior branches involved, with pain radiating into superior. This proved a hard case to treat. Patient received four injections for the middle branch and four for the inferior, besides one peripheral injection of the middle one, but finally was entirely relieved and has remained well.

CASE 53.—June 22, 1908. Man, aged 77; atheromatous arteries; neuralgia of right middle branch off and on for last two years; occasionally radiated to upper or lower branch. As this was not a severe case and patient when seen was not suffering I made two peripheral injections on successive days and advised him to wait. He was entirely relieved and remained free from pain until his death five months later, probably from angina pectoris.

CASE 54.—June 26, 1908. Woman, aged 60; neuralgia of lower branch last eight months. I saw this patient in transit and made one injection which did not get the nerve well and from which she received no benefit. On the contrary, she writes me that for three weeks afterward the pain was worse than ever. Subsequently she improved, evidently a period of spontaneous amelioration and not due to the injection.

CASE 55.—June 26, 1908. Physician, aged 49. His neuralgia began in October, 1904. In April, 1906, an eminent surgeon did the Abbé operation, which relieved him entirely for nearly a year and practically for nearly fourteen months. When seen the pain was as bad as ever and, as before, limited to inferior branch. This branch was injected June 26 and 30 with instant and complete relief, but six months later pain began to return and invaded middle area. In January, 1909, he received three injections for lower and one for middle branch. I thought latter should be treated again but patient was entirely free from pain, went home, and has remained well.

CASE 56.—June 28, 1908. Woman, aged 72, with enlarged heart and irregular pulse. Forty-three years ago the lower jaw was injured in the extraction of a tooth. This was followed by severe paroxysmal pain. Soon after, a surgeon in attempting to remove dead bone and cut the nerve, fractured the jaw. After this there was no pain for a year, when it returned. Since then the patient has undergone eighteen peripheral operations, each one relieving her for a longer or shorter period. Paroxysms exceedingly severe. Injection made at once. Relief was immediate but not complete, as she had an occasional pain during the next few days. Four days later treatment was repeated, after which she had only an occasional pain, never severe. Evidently she needed further treatment but was satisfid with the result and prepared to wait. The slight pains disappeared and there was no sign of neuralgia for six months. On Feb. 15, 1909, she received an injection and has been perfectly free from pain since.

CASE 57.—June 27, 1908. Physician, aged 40; neuralgia of right middle branch began over five years before above date. In spring of 1905 it extended to superior branch. In 1906 antrum opened and in August, 1907, infraorbital nerve resected, which gave him not complete but practically complete relief until a few days ago, ten months. Paroxysms now frequent and rather severe. Middle branch was injected June 27 and July 1, and peripheral injection of supraorbital made June 28. Relief was complete and patient has had no pain, although through the winter he was much exposed to wind and weather.

CASE 58.—July 1, 1908. Man, aged 42; neuralgia began twenty years before above date in supraorbital division; a year later changed to infraorbital division and two or three years before above date again began to invade supraorbital. Injection of infraorbital July 1 and on same day peripheral injection of supraorbital. Pain was relieved but the deep injection caused transient paresis of abducens. Patient has remained well.

CASE 59.—Sept. 10, 1908. Man, aged 45; tuberculous hip with sinus since age of 8. Rectal fistula for five years, neuralgia right middle branch for last six years, of inferior branch last seven months, and for two or three months radiating into supraorbital. Numerous paroxysms every day. Patient received five injections for the middle and three for the lower branch; complete relief and no recurrence.

CASE 60.—Sept. 18, 1908. Woman, aged 66; neuralgia of left middle branch for ten years; for last six months so severe that patient's strength had suffered from lack of food. She received eight injections in all, though there was practically no pain after the third one. There was great difficulty in reaching the nerve. April 22, 1909, considerable pain. Patient now better but doubtless will need treatment before long.

CASE 61.—Sept. 25, 1908. Small, delicate, nervous woman, aged 58; neuralgia for four years. In January, 1908, a deep injection was given by another physician with immediate relief. After two weeks there was a little pain and in February injection was repeated with relief for five months. In August she had received three injections with no benefit. I gave her three injections, the first two missing, the third getting the nerve well, since which time she has been entirely well as far as the neuralgia is concerned.

CASE 62.—Oct. 3, 1908. Woman, aged 37; neuralgia of superior maxillary division for six years. Resection of nerve July, 1905, relief for fifteen months. May, 1907, nerve was again resected, the foramen injected with osmic acid and then plugged with a silver screw. Relief for nine or ten months. Supraorbital nerve said to have been divided three weeks before my treatment, but there was no analgesia. I made deep injection of middle branch and peripheral of upper; immediate relief. Patient left the city the same day. Five months later slight return of pain, but patient is still relatively comfortable.

CASE 63.—Oct. 10, 1908. Man, aged 64; neuralgia for ten years; for first five in right lower branch only, for last five in middle as well. In the last four years not a single day free from pain; generally about 150 paroxysms daily. Three injections; complete relief, no recurrence.

CASE 64.—Oct. 17, 1908. Woman, aged 60; neuralgia of right middle branch began three and a half years before above date. Three months before my treatment another physician gave patient several peripheral injections of alcohol with great relief. I made one deep injection with but slight effect and the patient decided to try Eddyism.

CASE 65.—Oct. 30, 1908. Man, aged 58; neuralgia for three years, lower and middle branches, radiating into upper; a bad case. Four months before date of my treatment a well-known surgeon injected osmic acid without result. This patient received two injections for the inferior and five for the middle branch. The latter was exceedingly difficult to get. I tried going in in front of the coronoid process, behind it (below the zygoma) and above the zygoma. The patient was completely relieved, but about the middle of February, 1909, began to feel signs of recurrence. Between February 22 and March 5 he received two injections for inferior maxillary and two for superior. As I could not reach the latter, owing, I think, to the bony conformation, I injected the alcohol at the infraorbital foramen. Patient was relieved and there has been no recurrence.

CASE 66.—Oct. 31, 1908. Woman, aged 63; neuralgia of right lower branch began six years before above date. Two

years later evulsion of nerve; relief for a year or more. For last six months pain worse than ever before. Three months before I treated patient a surgeon again operated and gave four injections of alcohol. No relief from operation; some from the injections. I gave her two injections, the first missing. Complete relief and no recurrence.

CASE 67.—Dec. 11, 1908. Woman, aged 60; neuralgia for five years, first and second branches involved. Arteriosclerosis and hypertrophy of heart. She received three deep injections for middle branch and one peripheral one for the superior branch. Complete relief. Recently slight signs of return.

CASE 68.—Dec. 15, 1908. Man, aged 48; neuralgia began eighteen months before above date in right upper jaw. For last three months lower also affected. Poor general health, dilated heart, and in last three months four attacks of unconsciousness. He received one injection for middle branch and three for the lower. Entire relief and no recurrence. Patient has had no more fits.

CASE 69.—Dec. 23, 1908. Man, aged 65; senile; arteriosclerosis, intermittent heart, feet cyanotic. Neuralgia of middle and inferior branches for about one year. Patient received four injections for inferior branch, one deep and one peripheral for the middle branch. He was relieved of pain but this is the most unfortunate case I have had. Immediately following the deep injection of the middle branch the patient showed paresis of the abducens and some analgesia of the supraorbital area and the next day a keratitis which finally eventuated in a superficial ulcer. He had the care of a skilled oculist but left the city and I have been unable to get a later report.

CASE 70.—Dec. 29, 1908. Man, aged 74; atheromatous arteries, mitral and aortic murmurs. Severe neuralgia of left lower branch for one year. The first injection missed the nerve. The next day patient had what apparently was a slight cerebral thrombosis and operations were deferred until Jan. 11, 1909. An injection on this date missed, but two days later I struck the nerve at a depth of 5.5 cm., since which time the patient has been entirely free from pain.

CASE 71.—Jan. 6, 1909. Man, aged 61; neuralgia for fifteen years, all branches involved. Mitral disease, albumin and casts in urine. Excision of nerves performed seven years ago; partial relief for a year. Patient received three deep injections for middle branch, one for lower and a peripheral injection for supraorbital. Complete relief and no recurrence.

CASE 72.—Jan. 14, 1909. Man, aged 47; very nervous; enteroptosis; general health poor. Neuralgia for nearly two years, middle and inferior branches. Three injections, not entirely satisfactory as regards analgesia but relief complete. Patient went home and has had no return of pain.

CASE 73.—Jan. 23, 1909. Woman, aged 45; neuralgia began twelve years ago and from beginning involved all branches. This patient had a remarkably large face for a woman, with prominent cheek bones and most unusual thickness of the lower jaw. Apparently the deeper bones were also thick, for I had great difficulty in reaching the nerves. Patient received three deep injections each for middle and inferior branches and one peripheral injection for the first division. Complete relief and no return of pain.

CASE 74.—Mar. 9, 1909. Man, aged 46; neuralgia for fifteen years. Pain in middle branch but started by touches in supraorbital and inferior maxillary areas. Four years before above date resection of superior maxillary; relief for one year. Six months before same date four deep injections of alcohol; relief for three months. Three more injections; no relief. I gave patient three injections for lower branch, one deep and one peripheral for middle branch, and he has had no more pain on that side. About Mar. 18, 1909, he began to have typical neuralgia pains in *left* lower area and April 5 and 8 I injected this branch, since which time patient has been well.

CASE 75.—MAR. 12, 1909. Man, aged 62; arteriosclerosis, hypertrophied heart. Neuralgia began ten or twelve years ago in right middle branch; a year later extended to supraorbital. Many remissions, once for a year. Now very severe. Four or five years ago wedge-shaped piece excised from upper lip; no relief. I gave patient a deep injection of superior maxillary and peripheral one of supraorbital. Instant relief, no return of pain.

I think that there can be no doubt whatsoever that when the injection reaches the nerve the pain is stopped at once. In this sense I have had not a single failure. The greatest drawback to the method is the uncertainty of reaching the nerve on any given trial. But if the patient is willing to persevere he is practically certain of relief. Of course, in many cases one succeeds the first time.

The danger of the operation is as nearly *nil* as can well be. I know of no fatality and think none has ever been recorded. Nor have I heard of a single case of infection. I have had none in over 300 injections. Disagreeable complications are exceedingly infrequent, my worst, indeed practically all, having been in Cases 31, 50 and 69. In a few cases injection of the middle branch has caused a small hematoma which did no harm and occasionally I have produced transient paresis of the sixth nerve. In this connection it is worthy of note that in the 75 consecutive cases covered by this report 36 patients were between 60 and 70 years old, 13 between 70 and 80 and one over 80.

The procedure is not excessively painful; at least patients do not often complain of it. An anesthetic is very rarely necessary. In four cases I have given gas, but in only one of these (Case 40) was it absolutely required. There is no shock. Most of my injections have been done in the office, and in a few minutes the patients are ready to walk out, though I prefer to have them lie down for twenty or thirty minutes. Queer as it may seem, the alcohol itself causes no pain after a few seconds.

There is no reason to believe that these injections effect a radical cure, though I suppose that occasionally this might be the result. The period of relief to be attained is hard to estimate. A good injection, as shown by marked analgesia, may be expected to relieve for from one to three years, possibly more. One trouble I have had is to get patients to have more treatments after the pain has been stopped. The sufferer is satisfied as soon as relieved.

Reinjections after recurrence and injection in cases in which patients have already undergone peripheral operations seem to be just as successful as primary injections. I have never had occasion to give an injection to a patient who had been subjected to the ganglion operation.

While I do not at all wish to be understood as making a special plea for this treatment, recognizing, as I do, its many weak points, it is only fair to the reader that I should state my opinion that in the majority of cases it is the simplest, least hazardous and best. Should it finally fail, the Abbé or the Gasserian operation is still open to the patient. It will occur to every one that by this means old, feeble and infirm sufferers may be made comfortable at minimum risk until length of years or intercurrent disease leads to the final *exitus*.

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## ABSTRACT OF DISCUSSION

DR. D'ORSAY HECHT, Chicago: The conclusions that I have come to concerning the deep alcohol injections are based on an experience with 38 cases to date, in which I may have totaled 150 injections. I can share Dr. Patrick's sense of disappointment in missing the nerve, and, on the other hand, have experienced the agreeable feeling of having produced immediate analgesia in the related area by getting the solution into the nerve, than which there can be no more pleasant sensation for patient and operator alike. My youngest patient was 25 and the oldest 90. In both I had good results. I had one experience in injecting the ophthalmic branch which

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leads me to the conviction that I shall not do it again. The amount of ecchymosis and edema of the conjunctiva and eye was such that I had to resort to cold applications and scarification. No permanent damage was done, but the condition caused me to feel uncomfortable for several days. In another patient, a bleeder, I was unfortunate enough to encounter hemorrhage, resulting in the formation of a rather large hematoma in the cheek, which was slowly resorbed. The patient was a woman from a neighboring state, who had typical trifacial pain. The diagnosis of the underlying pathology was very difficult. Sinus disease was known to have been present, brain tumor was suspected, and all this in a highly neurotic individual. After the first injection she had relief for about two months. She returned to her home and the recurrence of pain led to surgical intervention in the form of placing a screw in the infraorbital foramen. This was done without relief and the patient in three months returned for further injections, which were likewise without benefit to her.

I should like to call attention to a class of cases thought by some to be trifacial neuralgias, but which are merely minor facial neuralgias. They require to be differentiated, and unless they conform to the well-known clinical description of trifacial disease, I should say that they were unsuited for the alcoholic treatment. When these patients with vague continuous pain are subjected to *x*-ray examination, some underlying pathology referable to the teeth, jaws or sinuses is always revealed. I might add that a small, flexible film placed in the mouth along the borders of the teeth supposedly giving rise to the pain will disclose the dental condition better than an outside exposure. In every case of trifacial pain, whether typical or atypical, I seek to ascertain the underlying pathology with every adjunct to diagnosis at my disposal.

On the whole, my results have been good, although I reiterate what Dr. Patrick has said, that at times I have felt discouraged with the method. I shall, however, continue to do the trifacial injections with alcohol, feeling about them as I did two years ago, that they afford in a large proportion of the cases the best kind of palliation known to me and borne out by my experience of free intervals from pain from the shortest period of four weeks to the longest of two and a half years.

DR. B. R. TUCKER, Richmond, Va.: I recently reported in a local journal thirteen cases of trifacial neuralgia treated by medical means. After trying all medical treatment in one case and it having failed, the injections were tried and proved successful for three months. The patient, a woman of 72 years in very wretched health, came back and the operation was repeated and proved successful again.

DR. C. L. DANA, New York: In the class of cases that Dr. Patrick refers to as trifacial neuralgia, does this term mean *tic douloureux?* This seems to me a specific kind of neuralgia occurring with peculiar symptoms almost always after the fortieth year in the degenerative period of life. The facial neuralgias which occur in early life are usually sympathetic, but these sometimes take on themselves the typical aspect of a *tic douloureux*. I should like to know whether his successes are not with older patients.

So far as my experience goes in the ordinary *tic douloureux* of the degenerative period of life, when the disease has not been very long standing, the operation seems to work satisfactorily. But in the very prolonged cases a sort of psychosis is added to the neurosis, and the operation does not seem to be of so much benefit.

DR. HUGH T. PATRICK, Chicago: As accurately as I could make the diagnosis these were all perfectly typical cases of *tic douloureux*. Most of these patients had passed the fortieth year. The age question is rather interesting; and those in the thirties (and there were very few of them) were not to be distinguished, by me, at least, from the perfectly typical cases in older persons; that is, the intermittent, short, violent, exceedingly severe pains with intervals of remission of various length. The pains would be started by a slight sensory stimulus on the face, such as washing it, touching it, eating, talking, etc. Really typical trifacial neuralgia is something apart and different from anything else and the diagnosis is not difficult. As regards the operation, I would say the older the people the easier the job; the tissues are soft, they are not fat, the distance to go is not so great. The tissues being soft, one can handle the needle better after it is in and can feel out the way more easily in the old people than in the younger, more vigorous and more muscular patients, in whom the fasciæ are tough and hard and in whom there is considerable muscular mass. Those are the cases which have been difficult as a rule; although occasionally in an old person I find bony trouble.

Another thing that I am generally asked is whether I give an anesthetic, and whether the injection itself is very painful. I do not give an anesthetic as a rule. In most of these cases the operation, if you may call it such, is done in the office, although I can not say that I advocate that particularly, only it has been convenient to do it so. In a few cases I have had gas given, once in the case of a woman who had a good many injections, the disease being of seventeen years' standing, always with success, and who at present is perfectly free from pain. She objected to the discomfort of the injection and had gas a number of times. One patient was such a bad case, also of long standing, that I could not even palpate the face, let alone scrub and clean it, without causing this terrible pain. When I put my finger on the malar bone to feel the process the man could not keep still—the exceedingly lancinating pains were too much for him. I gave him gas and then the injection and when he woke up he was free from pain. I rubbed his face with ice water and handed him a glass to drink; he was afraid to try it—he said he didn't want to—but he finally drank it and said: "That is the first vessel that has touched my lips for four months." His wife had fed him with extreme care from the other side of the mouth with a teaspoon so as not to touch the side of the face where the pain was.

One old woman who had had something like nine operations and was exceedingly nervous and hypersensitive could not or would not keep still and I missed the nerve entirely. She then went into a hospital and I gave her two injections under gas. That is about a year and eight months ago, and she has remained entirely free from pain since. The injections after other operations are interesting. I have given injections after all operations except the Gasserian operation. I never have had a case in which the Gasserian ganglion had been removed; but I have had one after an intracranial section of the nerves; also one case in which a screw had been inserted into the infraorbital foramen, and those injections were as successful as the others.

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## CERTAIN HITHERTO UNPUBLISHED DATA CONCERNING THE INSANE

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One of the most natural and most common of questions concerning the insane, as they are found massed in a hospital, is: "What becomes of them all?" Oddly enough, this question has never been fully answered. At first glance the question seems easy to answer, but a search among the common tables shows that it has not been found easy.

Seeing this, I was led last year to attempt a tabulation (Table 1) which should show what became of them, so far as hospital records answer that question. That is, of a given consecutive or average number of admissions of patients having the average of characteristics I would like to show how many die in the hospital, how many leave "recovered," how many leave "improved," how many leave as "unimproved," and how long it takes to secure each of these results. While this table is closely exact as to the shorter durations, it is yet, of course, and as a whole, a "close approximation," and is derived from a study of the cases in the Rochester State Hospital. It also disregards a study of what may be-

come of patients after six months of probation and discharge.

Table 1 assumes 1,000 consecutive admissions of insane patients, and then, keeping to the same individual cases, and disregarding all subsequent admissions, follows these 1,000 persons till all are disposed of under one of four headings: (1) "died," (2) "discharged as recovered," (3) "discharged as improved," (4) "discharged as unimproved."

TABLE SHOWING TERMINATION OF CASES OF 1,000 NEWLY ADMITTED INSANE PERSONS

| Years of Stay in Hospital. | Died. | Discharged, recovered. | Discharged, improved. | Discharged, unimproved. | Remaining. |
|---|---|---|---|---|---|
| During 1st year | 150 | 160 | 150 | 5 | 535 |
| During 2d year | 50 | 27 | 69 | 5 | 384 |
| During 3d year | 40 | 7 | 25 | 4 | 310 |
| During 4th year | 30 | 3 | 13 | 4 | 260 |
| During 5th year | 20 | 2 | 5 | 3 | 230 |
| During 6th year | 15 | 1 | 3 | 3 | 207 |
| During 7th year | 13 | 1 | 2 | 2 | 187 |
| During 8th year | 14 | ... | 1 | 1 | 171 |
| During 9th year | 13 | ... | 1 | 1 | 156 |
| During 10th year | 13 | ... | 1 | 1 | 141 |
| During 11th year | 13 | ... | ... | 1 | 127 |
| During 12th year | 12 | ... | ... | ... | 115 |
| During 13th year | 11 | ... | ... | ... | 104 |
| During 14th year | 11 | ... | ... | ... | 93 |
| During 15th year | 10 | ... | ... | ... | 83 |
| During 16th year | 10 | ... | ... | ... | 73 |
| During 17th year | 10 | ... | ... | ... | 63 |
| During 18th year | 9 | ... | ... | ... | 54 |
| During 19th year | 8 | ... | ... | ... | 46 |
| During 20th year | 7 | ... | ... | ... | 39 |
| During 21st year | 6 | ... | ... | ... | 33 |
| During 22d year | 6 | ... | ... | ... | 27 |
| During 23d year | 5 | ... | ... | ... | 22 |
| During 24th year | 5 | ... | ... | ... | 17 |
| During 25th year | 4 | ... | ... | ... | 13 |
| During 25th to 30th year | 8 | ... | ... | ... | 5 |
| During 30th to 35th year | 4 | ... | ... | ... | 1 |
| During 35th to 40th year | 1 | ... | ... | ... | ... |
| Totals | 500 | 200 | 270 | 30 | |

I think that most people, even those acquainted with the insane, will be surprised at some of the items. I will call attention to some of them.

1. Nearly one-half the cases (465 out of the 1,000) are terminated before they have been one year in the hospital.

2. About one-fifteenth of the patients (150 out of the 1,000) have died before one year of their residence is over. This is partly due to the admissions of "seniles" and "paretics," but partly to the little-noted indirectly fatal character of the acute stages of insanity.

3. A very large number of patients stay out in the world as "improved." I do not make allowance in this table for "relapses," but, as hardly ever more than one patient out of ten relapses, even if these be allowed for, yet rather more patients go out and stay out as "improved" than go out and stay out as "recovered."

4. It takes approximately forty years to terminate all the cases. The older patients live about as long as they would if not insane.

### THE LIABILITY OF DIFFERING AGES TOWARD INSANITY

It is commonly said, and all hospitals have tables which show, that the most common age to become insane is about the ages 30 to 35. This is true as to the occurrence of the greater number of cases. It is instantly assumed, however, and is commonly stated that the greatest liability to become insane is at such ages. This is not true.

The reason that it is not true lies in the fact that the number of people living is less at each succeeding age. Indeed, the age of nearly one-half the population living is less than 20 years, and yet very few cases of insanity come from that period.

To illustrate this, suppose there are in a community 1,000 people of the age of 55 and 3,000 people of the age of 25. Now, if 10 people from the 1,000 of the age of 55 go insane, and if 30 people of the 3,000 of the age of 25 go insane, then there will be the same percentage liability at each age. Yet the actual numbers are as 3 to 1.

Clear as this seems, I find no table incorporating this fact or in any way recognizing it as a vital and important practical truth. Table 2, computed by comparing the total population of Minnesota with its total insane committed, is formed to show the actual liability per million, and also the actual percentage liability as between the different age decades.

COMPARATIVE LIABILITY TO INSANITY IN EACH DECADE

| Age by decades. | No. living in each age in Minn. (census 1905). | No. insane admitted in 1907 in Minn. 1902. | No. insane of each age admitted in Minn. per million people living at that age in Minn. | Proportionate chance insane at each age decade will be to other decades, in percentages. |
|---|---|---|---|---|
| | | | | Per cent. |
| Under age 20.... | 807,978 | 54 | 66.8 | .410 |
| From age 20-30.. | 309,281 | 380 | 1257.7 | 7.727 |
| From age 30-40.. | 252,248 | 522 | 2069.3 | 12.710 |
| From age 40-50.. | 172,688 | 379 | 2194.2 | 13.481 |
| From age 50-60.. | 103,189 | 218 | 2112.6 | 12.980 |
| From age 60-70.. | 63,388 | 122 | 1924.6 | 11.824 |
| From age 70-80.. | 31,926 | 78 | 2514.0 | 15.447 |
| Over 80 ..... | 7,494 | 31 | 4136.6 | 25.415 |
| Totals .... | 1,747,292 (People in Minn.) | 1,793 | 16275.8 (Sum of relative chances.) | 99.994 |

Column 4 is obtained by multiplying Column 3 by 1,000,000 and dividing by Column 2. It is from the proportion: "807,978 is to 54, as 1,000,000 is to the required number."

Column 5 is obtained by dividing the chances per million of each decade by the total number of chances. It merely gives the chance of each decade as compared with the whole in terms of parts of 100. It is a relative percentage.

The caution must be added that this last column does not show the percentage of insane committed, but only the relative chances of becoming insane in one decade as compared to the other decades and as compared with one hundred chances. If there were an equal number of people at each age, this would be the proportion committed from each decade.

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**A Case of Displacement of the Descending Colon.**—Mahmoud Hamdy and Mustafa Fahmy Sorour, of the school of medicine, Cairo, Egypt, state (*Jour. Anat. and Physiol.*, April, 1909, xliii, 242) that it is quite common to find considerable variations in the positions of the various parts of the colon in Egyptian cadavers. There have been reported from Egypt a case of intestinal obstruction, in which the pelvic colon, on post-mortem examination, was found to be 83 cm. in length (1 cm. less than the longest recorded example), a colon passing obliquely across the body postperitoneally, from the cecum to the splenic flexure and the case described below, in which the pelvic colon lay as an inverted distended U-shaped tube in front of and adjacent to the cecum, appendix and distal end of the ileum, in such a position as to give considerable confusion and embarrassment if it became necessary to perform colotomy or to examine the region of the appendix. "The whole oblique extent of the colon, from the splenic flexure to the pelvic colon, was placed behind the peritoneum, which covered only its anterior aspect. The whole of the left side of the abdomen below the level of the kidney was devoid of any colic contents. The root of the pelvic mesocolon was in contact with the cecum, and there was a very deep and narrow cleft between the two, occupied by the appendix and partly roofed over by a peritoneal fold passing from the pelvic mesocolon on to the anterior surface of the ileum and cecum."

# THE PLAGUE ERADICATIVE MEASURES (SQUIRREL CAMPAIGN) IN CONTRA COSTA COUNTY, CALIFORNIA

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The hypothesis of an epidemic (or more properly an enzootic, as we are speaking of animals) has greater chances of being true. This enzootic is prevalent in a permanent manner in one species of animals which is found in the mountains of Asia. From this animal the virus is automatically propagated to the rat and from the rat to man. Plague seems thus to be an accidental disease in the rat as it is in man, and it is necessary to trace further back to discover the animal which acts as the host for the bacillus pestis. Beliatsky and Reschtnikoff first, and Zabolotny later have drawn our attention to a rodent of Mongolia which they believe to be this animal host. This rodent is a sort of marmot, the *Arctomys bobac* or *tarabagan* which presents from time to time lymphatic swellings. The natives hunt it for eating purposes and also on account of its fat. According to these three Russian authors the inhabitants of certain uncivilized districts of Siberia receive plague periodically from this animal. The intermediary to the rat might thus be exterminated. One understands the full importance of this discovery if it should be confirmed. To eradicate plague forever from the surface of the globe it would be sufficient to declare a war of extermination no longer against the rat, which is cosmopolitan, but against this rodent of Tibet from which the disease spreads to every part of the globe. *La Pathologie Exotique*, LeDantec.

For several years human deaths from plague have been a matter of annual occurrence in Contra Costa County, and it has been known that for at least the past four years some epizootic has been spreading among the ground-squirrels of that region. This animal, the *Citellus beechyi*, resembles the *Arctomys bobac* very closely in habits and appearance, and it is not at all improbable that it bears a similar relation to the perpetuation and distribution of bubonic plague to other species. Ranchers and others who have observed the squirrels closely state that in 1904-5-6 they died by the thousand. They would emerge from their holes and stagger about as though they were drunk, and on many occasions it was possible for one to kill them with a stick. Their fur was turned the wrong way and in some instances they were emaciated, and presented swellings beneath the jaws or in the axillæ. Numbers of them were seen crawling on the ground in a dazed condition, apparently having lost all sense of direction, blunderingly trying to find their holes. It is not at all improbable that some were suffering from the pneumonic form of the disease. Several very intelligent ranchers who took the trouble to open the bodies state that the lungs were dark red in color and resembled liver in consistency. In many places the squirrels died in such numbers that the buzzards came in great flocks, and the air was redolent with the odors of the decomposing bodies. Up to that time the squirrels had been a great pest, levying a heavy annual tribute on the products of the farmer. On some of the ranches they existed in such great numbers that "the entire hillsides seemed to move with them." In one part of the county the vineyards had to be surrounded with sheet-iron fences which extended two feet below the ground and three feet above, in order to prevent the squirrels from destroying both the grapes and the vines. Even yet there remain valleys where they are so plentiful that one may see hundreds of them in a few minutes' walk. They may be observed playing about or eating the grain and seeds on which they subsist, and usually there are one or two sitting bolt upright by the entrance to the burrow. On the approach of the hunter they will whistle, and after a short time it is very easy to recognize the meaning of these signals. If one sharp whistle is given the animal will usually sit still, and it is still possible to get a shot. If he gives one sharp whistle and goes down into the hole, it is safe to wait a few minutes for him, but if he gives one sharp whistle followed by two or three trills in a descending scale it is simply a waste of time to wait for him to come out, because he has been thoroughly frightened and may not reappear for two or three hours. In many cases entire crops were destroyed by the squirrels. As a result this epizootic was welcomed because the rancher realized that the extermination of these in such hordes meant a great saving to him.

The epizootic was assigned to various causes. Some thought that it was due to the blasting with dynamite in the construction of a tunnel through the Berkeley hills. Others maintained that it was due to some disease which had been inoculated in the squirrels by some of the professors at the State Agricultural College, while others affirmed that it was due to a product called "squirrelene," which came into general use about that time.

The epizootic seemed to begin in the northern part of the county along the coast of Suisun Bay, and rapidly spread as far east as the river and south into Alameda County. Some observers have stated that the disease entered the county from the south by way of the Niles Canyon, while others believe that the route of entry was through the Moragua Valley. If an entrance was gained through the first route, the hypothesis that the squirrels were infected by rats brought to this country on the sugar ships from Honolulu might be tenable. If the disease came into the county through the two last-mentioned routes, it would seem more likely that Oakland was the infecting nidus. This, however, is a departure into the realm of speculation, which is of little profit.

Surgeon Rupert Blue, of the U. S. Public Health and Marine-Hospital Service, and Dr. N. K. Foster, Secretary of the State Board of Health, looked into the matter, but it was impossible at the time to go into very extensive investigations. In all probability this disease was bubonic plague, but this could not be determined until the summer and autumn of 1908, when the investigations following two human cases resulted in the discovery of four plague-infected squirrels. The pathologic findings in these animals, which were the first cases of natural plague among ground-squirrels ever seen in America, is the subject of an exhaustive monograph by Acting Assistant-Surgeon William H. Wherry, U. S. Public Health and Marine-Hospital Service.[1] Three of these squirrels were shot and one was found dead. All were discovered within four miles of Bay Point, California. One of these was found on the ranch where a boy died from bubonic plague in the summer of 1908; the others were secured near the coast of Suisun Bay. These findings removed the question of squirrel plague from the field of theoretical consideration and placed it on the solid foundation of fact. It remained, however, to prove the extent of the infection and to evolve, if possible, a plan for the final eradication of the disease, which, having gained a permanent foothold in California, would continue as a perpetual menace to the bay cities, the state and the entire union.

In April, 1909, Surgeon Rupert Blue, acting under the authority of Surgeon-General Walter Wyman, of the U. S. Public Health and Marine-Hospital Service, began an active campaign in Contra Costa County, one of the central counties of the state. It is bounded entirely on the west, north and east by water, its western boundary being San Francisco Bay, its northern boundary the San Pablo and Suisun Bay, its eastern boundary the San

1. Wherry, W. H.: Jour. Infect. Dis., v.

Joaquin River and its southern boundary Alameda County. It is also bounded, to a certain extent, on the west by Alameda County and is, therefore, in close proximity to all of the bay cities. Its western boundary line is within nine miles of San Francisco and adjoins Berkeley. Its area is 734 square miles, or about 444,491 acres. Its topography is semimountainous, with broad, rich intervening valleys. Besides the range of hills bordering the western and northern portions of the county, there are two ranges of hills running in a general northerly and southerly direction, with large productive intervening valleys watered by substantial streams. In the center of the county stands Mount Diablo, a rugged peak about 3,800 feet in height. The valleys of Alnamora, Pacheco, Ignacio, Clayton and San Ramon extend from Suisun Bay at Martinez on the north to the southern boundary line of the county beyond San Ramon. Numerous smaller valleys branch off from these, and the great San Joaquin Valley begins in eastern Contra Costa, extending from Mount Diablo on the west to the San Joaquin River on the east. The rich valleys afford an abundant food-supply for the squirrel population, while the wild hill lands shelter them in winter from the rains, and human and animal foes. The proximity of the county to the bay cities, which have until recently been plague-infected, and the constant presence of ships hailing from Oriental ports, in Suisun Bay, demonstrate how easily the infection could have been introduced into the county. The large area to be covered, the wide spread of the infection and the character of the terrain all combine to render the campaign exceedingly difficult. This is still in its infancy, but a sufficient number of infected squirrels have been found to justify the belief that we are dealing with a permanent focus for plague.

The beginning of the campaign was very difficult; a new field of sanitary activity was being entered, and there were no established precedents to act as guides. The herculean proportions of the problem and the great distances to be traversed were overwhelming. The difficulties in securing and distributing supplies and in collecting the squirrels and forwarding them to San Francisco all had to be met and overcome. In addition, the confidence of the people had to be gained, and it was necessary to allay their fears so that they would not feel that the county was going to be injured by the work. The matter of personnel was also one of considerable difficulty. Fortunately there were in San Francisco a large number of men who had been carefully trained in the plague campaign there and who could be relied on to execute their orders in an efficient manner and to meet emergencies without calling on the assistance of an officer. The ideal man for this class of sanitary work is one who is tactful, self-reliant, gentlemanly, a good shot, a conscientious worker, and one who is able to go ahead without the constant presence of an officer.

In the early part of the campaign, while the ground was still moist, eradicative measures were put in force, largely for the purpose of determining the efficacy of the various agents to be used in the extermination of squirrels. A careful study was made of their habits, and it was found that the squirrels spend the winters, that is, the wet months, in the foothills, and that there the young are born.

They are usually collected in colonies, and sometimes they dig very extensive burrows, honeycombing an entire hillside. The openings to the burrow are approached by little paths two or three inches wide, worn in the grass by the frequent passage of the animal. As a rule rather soft ground is chosen for digging the warren, but frequently the squirrels will burrow into hard adobe, and in several places they have dug tunnels in the soft limestone. The earth which is dislodged in digging the burrows is piled in a mound at the mouth of the hole. The tunnel, if the soil will permit, usually makes a sharp drop, and then points up hill a distance of two or three feet. It then forks, one main branch going to the storehouse and the other to the nest. Collateral branches lead off from these two main avenues and usually there are several exits. The nest is formed of straw and pieces of soft bark, and is usually alive with fleas. In the storehouse may be found grain, fruit, and several varieties of wild seeds, of which they are, apparently, very fond. These are transported to the storehouse in the cheeks of the animal. In late April and early May most of the young squirrels have grown sufficiently to travel, and an emigration into the low lands begins. This is not completed until late May, when the grain crops are harvested. By this time food in the hills has become relatively scarce, and the animals, descending into the valleys, subsist on fruit, garden truck and grain. In the former instance their activities are particularly pernicious, and they have frequently been seen to cut off a small branch laden with unripe prunes and drag it into their holes.

It is stated by those who have eaten them that at certain seasons of the year ground-squirrels are a toothsome delicacy. Certain it is that many people eat them regularly, and several families have been found who are in the habit of salting them down in large numbers and using them almost to the exclusion of other meats. In all probability the eating of squirrels is not in itself dangerous, provided they are well cooked, but the danger lies in the handling of them prior to cooking, that is, in skinning and preparing them. There are a large number of men who make their living by hunting these animals for the markets, and, until recently, large daily shipments were made. Realizing the danger of such a practice, Surgeon Rupert Blue invited the attention of the State Board of Health to it, and, at his request, a resolution was passed forbidding the acceptance of ground-squirrels for shipment by express companies and common carriers, unless accompanied by a certificate to the effect that they were intended for scientific purposes and carried in sealed metal cans. This succeeded, in a measure, in putting a stop to this dangerous business, but a large number of private hunters continued to come into the county. Dr. Blue then brought the matter to the attention of the mayors of Oakland, Berkeley and Alameda, with the result that the people were warned against the use of ground-squirrels for food. An inspector was also stationed at the Fish ranch on the tunnel road, which is the main thoroughfare into the county, with instructions to inform all persons passing with bags of squirrels of the danger to which they were exposing themselves. As a result, the practice of eating squirrels has very greatly diminished, and the market hunters have been obliged to seek other employment.

Two agents were found which gave good results in the poisoning of squirrels. The first of these was commercial carbon bisulphid. To use this, a piece of waste the size of an orange is saturated with the fluid, and the wet ball placed in the mouth of the squirrel hole. Earth is then tamped tightly on it so that the gas which is generated may have no opportunity to escape. All of the holes of the burrow are treated in this way. In some instances the ball is placed deeply in the hole and then ignited. This is more or less dangerous, as an explosion

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occurs, and, while the gas is thus disseminated to all parts of the warren, its action covers only a limited period of time, and is, therefore, not as certain as the first method mentioned. Experiments are now being made with carbon bisulphid shells, which may prove rapid and efficacious means of squirrel destruction. The shell is made of waxed paper which is loosely packed with waste. Leading into it on either side is an isolated wire, the bare ends of which almost meet in the center of the shell. Just prior to using, the waste is saturated with carbon bisulphid. When the electrical current passes through the wire it sparks across the gap, thus igniting the bisulphid and producing an explosion. If one of these were placed in each hole of the warren and the earth tightly tamped about it, and all discharged simultaneously, it is believed that the shock alone would be sufficient to kill everything in the warren.

Thus far none of the pumps for introducing bisulphid into the tunnels have proved ideal. Many of them are efficacious, but are very heavy and slow in their delivery of gas. It is believed that a light and simple apparatus can be made by attaching an automobile pump to a tube guarded by a valve, and leading to the bottom of a large square tin can, from the upper surface of which would lead a hose for carrying the gas into the hole. By pumping air through the can of bisulphid the gas would be generated and could thus be rapidly forced into the subterranean tunnels. Carbon bisulphid seems to be the ideal agent for the extermination of squirrels in a plague campaign, for the reason that it not only kills the squirrels, but also the fleas on them, and in the tunnels, thus precluding the possibility of infected fleas remaining to perpetuate the epizootic in another colony of squirrels subsequently occupying the same burrow. The chief disadvantages of carbon bisulphid are its high explosive power, its liability to corrode the cans in which it is kept, and its cost, 11½ to 12 cents per pound in the California market. It can not be used when the ground is dry and cracked, and can, therefore, be applied with success only during the wet or winter months.

Sulphur dioxid, if properly applied, would fulfil all of the requirements of an ideal agent for poisoning squirrels. It is cheap and non-explosive. It would kill the squirrel and his parasites. Thus far only one hand-pump for introducing the gas produced by burning sulphur has been found in the market, and an opportunity to experiment with this pump has not yet occurred. Compressed sulphur dioxid, if it could be obtained cheaply enough, would be certain and rapid in its action. In common with all other gases, however, it would be efficacious only when the ground is wet. The fluid obtained on cleaning Pintsch gas tanks has been recommended. It is cheap and said to be efficacious, but it is not easy to secure it in sufficient quantity for carrying on a work of this kind. Experiments are now being made with a view of determining the merit of this product as a pulicide. Should it prove an efficient agent in this regard we will have a cheap and effective weapon.

The second agent which gives good success is poisoned wheat. The poisonous agent used is either strychnin sulphate or cyanid of potassium, preferably a mixture of the two, applied to wheat with a little glucose, or other sweet material, and then dried. The appended formula may be highly recommended:

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| Strychnin | 1. oz. |
| Cyanid of potassium | 2 oz. |
| Eggs | 1 doz. |
| Honey | 1 pt. |
| Wheat or barley | 30 lbs. |

Stir eggs well, then mix in honey and again stir. Then put in dry powdered strychnin and cyanid and stir until well mixed. Put wheat in large box or can and pour in the mixture of poison and stir until it is well distributed over the wheat. Stir two or three times during twenty-four hours, then spread out and dry. Before putting it out for the squirrels add oil of rhodium 1 drachm.

This agent is very effective when the food-supply is limited, that is, during the winter months. Great care must be taken in the distribution of poisoned wheat lest domestic animals, quail and other birds be killed by it. It should all be placed in the squirrel hole itself, and never on the surface of the ground. This is especially necessary in pastures when the feed is short, because valuable cattle cropping the grass close to the ground are apt to take it and be killed. This not only entails considerable expense, but also incurs the everlasting enmity of the owner of the animal. It will thus be seen that the ideal time to carry on a squirrel eradicative campaign is during the rainy season, as the squirrels are then localized in the foothills, the ground will hold the poisonous gas and the reduced food-supply will cause the consumption of the poisoned wheat.

There is reason to believe that the booby owl, which is a constant companion of the ground-squirrel, occupying the same burrows with him, may play an important rôle in the dissemination of the epizootic. It is thought that this bird, flying from burrow to burrow, may carry infected fleas for long distances. If this be found true, the problem of the eradication of the epizootic will be greatly complicated thereby. Some of the ranchers of this vicinity firmly believe that the booby owl does not harbor fleas, and state that it will transport horse manure long distances for the purposes of lining its nest. Their contention is that the ammonia generated by the decomposing manure will inhibit the growth and multiplication of fleas. As yet no opportunity has occurred to disprove or verify this statement.

Phosphorus has not proved as useful in the destruction of ground-squirrels as in the poisoning of rats. It is dangerous to handle, and serious fires may be started with it. After a few days' exposure to the open air and the bright sunshine it quickly loses its toxic power, and it is, therefore, not recommended for this work.

When there is a sufficient fall of water, flooding the squirrel warren will drive the squirrels out very effectually. If men are stationed around the edge of the colony with guns or clubs great numbers may be slain; but flooding is useless unless this is done, because the squirrels will simply migrate to the high lands, to return as soon as their burrows are dry.

It has been hoped that some use might be made of the natural enemies of the squirrel in this campaign, but no one of the known natural enemies is ideal for this purpose. The coyote, wolf, fox, badger, skunk, mountain lion, gopher snake, and red-tailed hawk all prey on the squirrel, but each is open to some objection. This matter is, however, being carefully studied out, and some plan may be evolved whereby use can be made of these means of killing squirrels.

Several varieties of traps have been experimented with, but none have proved very successful. A squirrel is a very wary animal, and will not enter its hole if it sees anything unusual therein. So simple a thing as a ball of paper placed in the mouth of the hole will cause the squirrels to abandon that particular runway. Experiments are now being made with snares. These are made of fine piano wire, and it is hoped that in this way a large number of ground-squirrels may be captured

alive. This will afford the laboratory an opportunity to study the susceptibility to plague of squirrels from an infected locality, and a few may be captured in the early stages of plague, thus rendering it possible to study the natural form of the disease at close range.

As a result of these discoveries it was decided by Surgeon Rupert Blue, who is in command of the plague campaign on the Pacific coast, that the work of the ensuing summer should consist entirely of scouting, with a view to determining the places in which infection occurred, and the percentage, if possible, of squirrels so infected. A number of men were, therefore, sent into Contra Costa County with an officer in charge. They were stationed, usually one man in a place, at what were considered the strategic points. Each was supplied with a double-barreled, 12-gauge shotgun, a cleaning rod, canvas knapsack, canvas-covered aluminum canteen, ammunition, squirrel tags, cans, chloroform, solder, indelible pencils, report blanks and stationery. A folding cot was issued to each man. The government provided subsistence for employés, but the latter were obliged to provide themselves with blankets, hobnailed shoes and other necessities.

It has been found, after considerable experimentation, that the double-barreled, 12-gauge shotgun is the best agent for shooting squirrels. These are light and, therefore, do not overburden the hunter, and, when well choked, are very effective up to fifty yards. As a matter of economy, however, the hunters do not usually shoot squirrels at a longer range than thirty yards. Rifles have been experimented with, but their use has been found impracticable. The 22 automatic is a handy gun for this purpose, but too frequently the squirrels shot by it escape. The 25-20 kills the animal most often, but it is a high-powered weapon, and the bullet will travel a considerable distance after having passed through the squirrel. This makes its use a menace to man and stock, and it is, therefore, not suitable for this sort of work.

The matter of ammunition has also been very carefully worked out, and it has been found that 3¼ drams of bulk powder and 1⅛ ounces of No. 8 soft shot make the most effective charge. Ground-squirrels are very hard to secure after having been shot. Frequently, even though badly mangled, they will crawl into their holes and thus escape. The ideal charge for securing ground-squirrels for purposes of examination is that which gives the maximum shock with the minimum laceration of the tissues. No. 8 shot is large enough to fill these requirements. It has been our experience that squirrels are most often secured when they are shot on the run, and that almost invariably when they are shot sitting up they will fall into a hole and thus escape. By shooting at the running squirrel the hunter has the double advantage of striking the animal when it is spread out, while at the same time he may choose the place where he wishes it to fall.

The squirrels are secured as soon as shot and the tags immediately attached. This is necessary because they will sometimes revive and crawl away, or the hunter may lose track of them and waste considerable time in hunting for them. If they are tagged as soon as shot there is no danger of tagging them wrongly, and the handling is reduced to the minimum. At the beginning of the campaign it was thought that the best way to secure plague-infected squirrels would be to make a careful search for their dead bodies. The employés were, therefore, instructed to make careful search for dead squirrels in and around colonies in which they were hunting. Out of sixty-seven thus found, not one has proved to be infected. This method has not, however, been abandoned, but little is expected from it, and it is thought that it is not improbable that the plague-stricken squirrels die in their holes.

Dogs are now being trained for the purpose of retrieving squirrels. This will save the hunter a great deal of work, and will enable him to secure almost all of the squirrels which he wounds. It has been found that the early morning and late afternoon are the best times of day to shoot squirrels. They ordinarily do not come out of the holes when it is very warm, very cold or very windy. It is not profitable to hunt in the same colony for more than two or three days at a time, as the squirrels soon become very "gun-shy" and take to earth as soon as any one approaches. Under ordinary conditions a hunter should shoot and secure at least 30 squirrels per day, although when they are very numerous the day's bag may reach 60 or 65. In one instance one man shot 86 in eight hours. It has been found that unless the hunter wears some protection for the shoulder it will become very badly bruised by the recoil of the gun. The best agent to prevent this is a pad of soft felt an inch in thickness, such as is used beneath horse-collars.

With a small number of employés we have been able thus far to send to the plague laboratory in San Francisco for examination an average of 2,000 squirrels per week. It is hoped that with a small increase in the force now at work this may be increased to 3,500 or 4,000 per week. These are taken from all parts of the county, it being the principle that for the present the work shall consist of taking samples of the squirrel population so that we may be able to outline with some degree of accuracy the area at present infected. Each squirrel is tagged to show where, when, how, and by whom captured. Usually the label also bears the name of the nearest town, so that if the squirrel should be found infected it will be easier to locate the particular ranch on the map. This is also necessary because there are so many ranches in various parts of the county bearing the same name.

Supplies are secured on contract, and are distributed to employés on requisition. It is not always an easy matter, but a small automobile is used and fifty or sixty miles are covered every day with a load of ammunition, cans and other supplies. By requisitioning early no time is lost by employés in waiting for shells and other munitions.

Employés have been cautioned as to the danger of handling squirrels, and the opportunity to receive Haffkine's prophylactic has been offered them. Several of the hunters have taken this immunizing treatment. All employés have been warned not to thrust their arms down the squirrel tunnels in an endeavor to recover animals which they have wounded. There is not only the danger of being bitten by the squirrel, but some infected fleas may also be picked up in this way. Another point not to be forgotten is that there are sometimes rattlesnakes in the holes. In fact, several employés were nearly bitten in this way. It has been found that a heavy piece of wire with a sharp barb about an inch long on the end is a very effective instrument in extracting wounded squirrels from the burrows. Each hunter carries in his knapsack a ball of waste saturated with chloroform. This is for the purpose of killing the fleas on the squirrels.

Each evening the squirrels are placed in tin cans specially provided for the purpose. In the can is placed 75 c.c. of commercial chloroform for the purpose of killing fleas; the lid is then tightly applied and carefully

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sealed with the solder. The can is then tagged and sent by express to the plague laboratory in San Francisco. It will thus be seen that every precaution is taken to protect expressmen and other persons handling the cans. In hot weather the squirrels must be rushed to the laboratory with the greatest expedition, as they are likely to decompose rapidly and generate considerable gas, which will blow off the covers, no matter how tightly they may be secured. This causes complaints on the part of the express companies and their employés. In many instances, however, it is very difficult to forward specimens prior to their decomposition. One hunter stationed in an isolated part of the county makes it his business to know whenever the ranchers in his vicinity are going to town, and gets them to carry his squirrels to the nearest village. There they are delivered to a foreman who ships them by stage to the nearest railroad; thence they are taken direct to Oakland, and by ferry to San Francisco.

Where two or more men are hunting in the same district (or where the bag is unusually large) large milk-cans with especially prepared rubber gaskets are used The lids are also secured by padlocks, one key of which is kept by the man sending the can, the other remaining at the laboratory. The small cans are used but once; the large cans are returned by express.

On the arrival of the cans in San Francisco they are immediately transported to the laboratory by a special messenger with a wagon. They usually arrive in time so that they may be examined within twenty-four hours after they are killed. When the squirrels arrive at the laboratory they are first liberally sprinkled with chloroform, after which they are given a bath of bichlorid of mercury, 1 to 1000. They are then piled on a large lead-topped table. One employé tacks the squirrels to shingles and passes them to a second laboratory assistant, who makes a record of the tag and gives the shingle a number, so that if the tag should be lost it will be possible to tell where the squirrel came from in case it should be found infected. The squirrel thus prepared is passed to other men who have become expert in opening small mammals through their great experience in handling rats during the San Francisco plague campaign. These men are very skilful in recognizing the gross lesions of bubonic plague, and as soon as a suspicious animal is found the dissection of it ceases. The attention of the bacteriologist is called to the squirrel, and in case he is unable to look at it immediately it is covered with a damp towel for the purpose of keeping off flies, should any have found entrance to the laboratory. The dissection is then finished by the medical officer in charge of the laboratory, who dictates to a clerk the findings in each particular case. They are noted on a card which becomes a part of the card-index system of the laboratory. Inoculations are made into guinea-pigs, and the usual cultures planted. All squirrels are carefully examined by the medical officer in charge of the laboratory, but so expert have his assistants become that on two occasions only have they failed to lay aside squirrels which subsequently proved infected. The value of the pathologic findings in the recognition of plague is thus very clearly demonstrated.

As soon as a suspicious or positive squirrel is found the medical officer in charge of the field operations is notified. It is the policy to discontinue work on any colony of squirrels which has presented a considerable degree of infection, it being felt that the present object of the work in that particular locality has thus been accomplished. The accompanying map shows the locations in which infection has been found. It will be noted that they are widely separated.

In all, about 250 infected squirrels have been found to date (Oct. 1, 1909), some having been found in almost every portion of the county in which the men have been at work. It is planned that in the autumn, when the suitable time for poisoning squirrels arrives, and the ranchers have the time to take up the matter, a general campaign of education will be instituted, and an endeavor made to enlist the cooperation of every person holding land in the county. It is hoped that poison may be issued gratis, and that the ranchers will distribute it under the direction of inspectors of the service. The State Board of Health and County Board of Supervisors cooperate in every way in the prosecution of this work.

Outline map of Contra Costa County and contiguous counties. The small flags indicate infected areas.

The commercial aspect of the problem is one which will interest the entire farming population of this region, and while they may not be enthusiastic over the campaign from the point of view of the public health, they are keenly alive to the fact that the eradication of the squirrel means the prevention of a tremendous annual monetary loss. It is, therefore, felt that there will be little difficulty in enlisting their cooperation.

The work which is now going on is directed at the eradication of a permanent focus for plague, and it is felt that the successful completion of this undertaking will rid America of a slumbering volcano of plague liable to eruption and great devastation at any time. This is a departure into a new field of sanitation and may be considered an advance in preventive medicine.

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**Pathologic Menopause.**—H. F. Pitcher, Haverhill, Mass., at the recent meeting of the American Electro-Therapeutic Association, stated that when the ovaries begin to atrophy and menstruation ceases while the nervous energies and nutritive system continue active, causing nervous irritability and vasomotor disturbances, the positive static breeze should be used until the nervous tension is relieved. The negative static breeze may be used if the patient becomes apathetic with a tendency to melancholia, followed by a strong spinal vibratory stimulation. He asserted that he has known mental aberration to clear up from this mild form of treatment. Malassimilation and autointoxication as a result of faulty elimination caused by passive congestion of the excretory organs, should be treated with the static wave current over the spinal region and abdomen. This aids metabolism and eliminates toxic material. When cerebral symptoms and vasomotor disturbances are excessive in plethoric patients, better circulation and tone in the pelvic organs may be produced by the static wave current. If the patient is of nervous temperament with sensitive pelvic nerves, the negative pole from the direct current is used in the vagina. On the other hand, prolonged menstruation or excessive uterine hemorrhage is controlled by the positive direct current, either vaginal or intrauterine, or by use of the Roentgen ray.

# FOUR GENERATIONS OF AMERICAN GOUT *

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The following series of four instances of chronic food-poisoning in four successive generations is submitted for its diagnostic interest, as well as because of its value in suggesting for therapeutic and hygienic attention the ground condition underlying similar obscure cases:

CASE 1.—The patient first came under my medical observation in 1901, when in her eighty-eighth year. She had always been a full eater, but did not consider herself unusual in the matter of appetite. The joints of the fingers and toes showed unmistakable, gouty changes, and the history given was that of an increasing disability of these small joints. On Oct. 10, 1901, while stepping from a carriage she felt a severe pain in the right knee, which gave way, letting her down on the ground. She was in great pain; the knee when seen by me was hot and considerably swollen, and there was some fluctuation evident above and outside the patella. No other joints were involved. On October 12, 1901, both knees and ankles were hot, swollen and tender. This condition gradually subsided under practical starvation and free evacuation of the bowels, and within a few days entirely disappeared. The temperature was never above 99 F.; the heart showed no sign of involvement; the urine was high-colored, full of urates, and contained a faint trace of albumin.

From that time until the death of the patient one year ago, at the age of 93, there were recurrent mild attacks of a similar nature, invariably controlled by and through the dietary, and by artificial evacuation and cleansing of the intestinal tract. Very frequent had been the occurrence of urticaria, sometimes synchronously with the joint involvement, often alone.

A vegetable, restricted diet enabled the patient to remain entirely free from symptoms, but was so seldom adhered to that the discomfort consequent on an oversuppply of food was usually present. This varied according to the gravity of the offense (measured in terms of food quantity) and its duration, far more distinctly than with the variation in the kind of food.

CASE 2.—The patient was an otherwise healthy man, aged 61, of sedentary habits, an excessive smoker, and an admittedly rapid eater. His food-supply, while always generous, never amounted to an apparent excess for the average man. He first came under my care in 1900, shortly before I saw and studied the case of his mother, just described. In 1892 he had been in bed several months with sciatica, following an accidental blow on the head. Since that time more markedly than before he had noticed a fulness of the abdomen, dizziness, belching, fugitive pains in the head, general discomfort, and a sense of heat throughout the body. The occiput and nape of the neck felt heavy, and sometimes even ached. There was considerable flatus and discomfort in the abdomen. The mouth "tasted bad," lights were seen dancing before the eyes, and there was some palpitation. The urine was high-colored and full of uric acid and sodium urate crystals.

Since first studied by me there have been many disappearances and just as many recurrences of this picture. Occasionally patches of eczema would appear over the dorsal surface of the hands, or on the arms. Once a large area (the size of the palm of the hand) appeared swollen, red and tender, in the left hypochondrium, and subsided without notice, as though an angioneurotic edema. There has been considerable stiffness and heaviness in the right leg, particularly from the knee down. This he attributes to the accident and to the blow on the head already noted. Occasionally the movements of the ankle and foot "have not been easy or natural." "This has always passed away." There has occasionally been an aching of the shin-bone and the calf of the leg, and a numbness of the toes. All of the symptoms have recently diminished and many have disappeared.

In May, 1905, during a series of symptoms similar to those just narrated, there appeared a crop of suppurating blebs between the toes of both feet, also a few on the under surface of the toes, and in the cracks and crevices of the under surface of the feet. First seeming abrasions, then blebs, then pustules made their appearance. Lymphangitis of the right leg followed, red lines running to the groin. The patient's condition was a distinctly septic one for two days and then settled to the normal. On milk diet and in bed the feet healed and in a week's time appeared well. Immediately on the resumption of solid food the blebs and pustules would occur, to subside again with its withdrawal. There was an excess of acid, offensive perspiration between the toes, and the tissues seemed to break down under its influence unless kept constantly clean. On diet, rest, complete withdrawal of the tobacco, and free evacuation of the bowels, this condition receded, and convalescence was secured, though only after a siege of three months' duration. The urine during this period showed the same concentration as on each previous occasion; also the precipitation of uric acid and its derivatives. In April, 1909, there was a beginning of a similar involvement of the toes and feet. With the previous experience to guide the line of treatment, however, the duration of the condition was brief, and at the end of a fortnight the skin surface appeared and remained normal.

The indefinite discomfort and the local symptoms on the skin of the body have occasionally recurred, but like their congeners, those of the toes and feet, all have yielded to fasting (tobacco and food) and to intestinal asepsis.

CASE 3.—This has been my own, and of especial personal interest, in the light of the two preceding pictures in my immediate ancestors. During boyhood I was able to eat inordinately, and no doubt, as most boys do, so I did. There is little doubt, moreover, that, boy-like, the method of eating was hurried and the mastication imperfect. Nothing untoward transpired in a health record singularly free from need for medical attention until the year 1902, when, while in the midst of a tennis match, I found myself unable to run because of a sharp pain in my right hip-joint. The next day this pain had nearly disappeared, and to such an extent that I was able to play through the tournament.

Frequently through that summer the pain recurred, always suddenly, usually during active exertion, and as a rule continuing for the greater part of a day. Usually it was in the hip, sometimes in the right knee. Rarely the right ankle felt heavy and painful. There was never swelling, and the joints were neither red nor hot. I next noticed that in the morning the hands felt puffy and swollen, the eyes tired, and the throat and pharynx stiff and even painful. The urine was normal and at no time then or since has contained either uric acid crystals, urates (solid), or albumin. Finally, one night after severe exercise, I noticed that although before dinner perfectly free from pain, I rose from the table stiff in the right knee and ankle. For the first time I associated the joint pains with the ingestion of considerable quantities of food, especially after severe exercise, and began to experiment accordingly. I found that up to a certain limit I could eat any and every kind of food. As soon as that limit in quantity had been passed the old joint symptoms, plus those of the face, hands, eyes and throat, would all make their appearance, and remain for a time corresponding to the excess of food. I found that fasting would relieve the distress, and that purgation would do away with it almost at once. There seemed to be little doubt either as to the etiology, pathology, or treatment indicated. A dietary régime was instituted that absolutely removed the difficulty and for a time prevented its return.

Two years ago there occurred another series of symptoms which proved equally perplexing, and was stupidly enough attributed to an entirely mistaken cause. I had been in the habit of using the first joint of my left forefinger as a plexi-meter under a metal plexor, in order to employ to advantage both the sense of hearing and the perception of resistance to the stroke. On the morning following a banquet I noticed a crop of tiny blebs surrounding this joint, and a sense of heat (not pain) in the skin and overlying tissues. My pharynx was stiff and sore, my eyes were watering, I suffered from a

* Read at the College of Physicians of Philadelphia, June 2, 1909.

profuse coryza, I sneezed incessantly, and, what seemed exceedingly strange at the time, my hands and feet were too large for gloves and shoes. The urine was absolutely normal. In a day every symptom had disappeared; even the joint of the forefinger had become normal. More than once after this the blebs and slight swelling of this joint reappeared, sometimes with, sometimes without the attendant train of supposedly influenzal symptoms. Invariably the occurrence followed a dietary indulgence between meals, and finally the association became too striking to ignore. I again began to experiment, as frequently as I could persuade myself to endure the discomfort of an old-fashioned influenzal attack. As certainly as I exceeded my heretofore perfectly safe limit, just so inevitably did I pay the penalty. A whole day would go by. Then a general feeling of muscular soreness and exhaustion would appear. The feet and hands would begin to feel swollen, and within twenty-four hours, or much sooner if the excess of food was large, the skin of the first phalanx of the left forefinger would parch and dry up, and later the digital phalanges of the first and second fingers of the left hand also. The dried skin would break out in blebs, with an intense itching that subsided only with a bowel movement, or with distance from the last ingestion of food. The pharynx would become red and granular; it was painful to swallow; muco-pus formed in the nasopharynx, and very frequently the voice would become husky to an extent that was as embarrassing as ridiculous, the cause being known. My nose would run and the tears flow as though I was suffering from an acute cold. On more than one occasion the irritation of the conjunctiva simulated one caused by a foreign body. The secretion varied from a clear serum to a true laudable pus. Almost invariably the ears felt full and uncomfortable. On one or two occasions there was a scaling and cracking of the skin between the toes. All of these symptoms, especially those experienced locally in the feet and hands, seemed to be exaggerated by any severe nervous excitement. Even when the blebs and swelling in the superficial tissues of the phalanges were subsiding, the nervous stimulus of a public discussion or speech, or of the presentation of a scientific paper, or even the stress and hurry of a crowded day's program, would tend to relight their activity, or at least to delay their disappearance. Following a free evacuation of the bowels there was almost immediate partial relief. Sprays, local applications and the internal administration of drugs, made matters only worse. Fortunately the conditions were such as naturally to discourage eating, because the appetite never waned.

Finally it became apparent that the quantity of food ingested in the twenty-four hours and that alone was at fault. From that moment the task became simple, though as difficult as it was plain. If too much was being eaten, less would and must suffice, even if it implied, as it does, a military diet. It appeared that there had developed either a tendency to the need of a diminishing amount of food in spite of a persistent appetite, or a more and more evident contraction in my ability to assimilate food-products. That the latter is not the correct explanation of the symptom-complex, which I can produce at will and as readily prevent, seems apparent from the perfect maintenance of health and vigor and bodily weight on an amount of food sufficiently low to prevent discomfort and subjective symptoms. That a diminished need plus a family idiosyncrasy best explains the phenomenon became laughably and painfully clear when the tendency reasserted itself in my child.

CASE 4.—This has been studied in my little girl of 4 (now 5) years, a high-strung child, always under nervous tension, who during the past twelve months has had repeated attacks of a type that her mother has labelled "cold," "grip," and everything else except the proper diagnosis, which only within the very recent past has she been willing to admit into consideration. Always overfed, like every other American child of Anglo-Saxon parentage, this little girl has, without warning, repeatedly become hoarse, has coughed day and night, has sneezed when not coughing, and run from eyes and nose until the handkerchief supply has found an end. Relief has been obtained when, and only when, the intestinal tract has been emptied from one end to the other and food altogether withdrawn. Skepticism became so intolerant that I finally challenged the mother to the experiment of deliberately overfeeding the child. She thereby produced a full-fledged, old-fashioned cold that would ordinarily require a week's sojourn in bed. Castor-oil and starvation, with the child at rest in bed, furnished a speedy cure. I have so often watched the process of overfeeding in this case result in the gradual production of the now (to me) classical symptoms, that I can nearly calculate their time of appearance by the amount of food administered.

That this case is not *sui generis* finds ready witness. Only to-day there was sent to me from Virginia a little girl of 12 with the history of a long-standing cold, catarrh of the nasopharynx and constant sneezing. I found her chest and abdomen normal, the lungs and heart absolutely sound. The tonsils were large, and from the nasopharynx dropped steadily a yellowish muco-pus. The mother stated that the child had a poor appetite, but on inquiry from the child I learned that the dietary of the day before had been as follows. Food actually eaten: breakfast, one orange, a plate of cereal, beefsteak, three griddle-cakes and syrup, a glass of milk and one slice of bread and butter; dinner, two helpings of meat, two helpings of potato and of one other vegetable, bread and butter, pickle, radishes and dessert; supper, meat, vegetables and fruit. While in my office this child sneezed several times. Her nasal and pharyngeal mucous membranes were slightly reddened, but otherwise normal. While the case has not been studied to its end, there is little doubt in my mind that this Southern descendant of our English ancestors is suffering from an inherited overappetite and from the need of a lessened food supply.

The danger from such knowledge as is gained through a superficial study of the above series of cases is apparent. It will furnish a strong temptation to the practitioner to term every cold gout, every influenza food-poisoning, every ache and pain lithemia, every joint swelling an excess of food. On the other hand, carelessness of the significance of signs and symptoms leads to disaster. A few days ago I saw in consultation a trained nurse with a tuberculous apex. Tubercle bacilli have since been found in her feces, and a positive tuberculin reaction has been obtained. There was neither a cough nor a particle of sputum to suggest a pulmonary involvement. The case was sent to me as one with a cardiac lesion.

I publish these records, my own among the number, for what they are worth in interest and value as bits of home study and observation and as pointers to the need of a discriminating care in diagnosis. Not without practical interest is the evident association in at least two of these cases of two distinct influences, the toxic and nervous, in the production and accentuation of symptoms. If no other lesson were taught and learned it would be of advantage for us to understand that not every chronic cough and expectoration can be safely regarded as tuberculous in origin; that a moderate amount of food may be an undersupply or an excess for the given individual; and that many a laryngitis and partial aphonia may be rationally attributed to the diet, and cured by a hygienic regime.

1708 Locust Street.

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**Infant Feeding.**—The number of women unable to nurse is much less than is popularly supposed. Madame Dluski, in a thesis delivered at the Baudeloeque Clinic, Paris, expresses the opinion that among 100 healthy women, when the necessary conditions of food and rest are present, 99 are actually able to nurse their offspring.—J. M. Connolly in *Hygiene and Physical Education*.

## Clinical Notes

### A NEW AND STABLE SOLUTION OF GENTIAN VIOLET FOR THE GRAM STAIN

ROBERT KILDUFFE, M.D.
PHILADELPHIA

Unfortunately for the simplification of an often complex problem, we now know that bacteria cannot be divided, as was once thought, into two great classes of Gram-positive and Gram-negative. It is true that many of the varying and contradictory statements on this head may be explained on the score of variations in technic, such as the length of time the stain and the alcohol were allowed to act, and the age of the culture experimented with; but it is nevertheless a fact that organisms repeatedly and consistently found to be Gram-negative will sometimes take the stain very well.

Thus, Zimmermann[1] found that all cultures of the *Bacterium fluorescens* stain well in young cultures; and Lehmann and Neumann[2] found that three out of twelve cultures of the same organism stained beautifully, yet this is a species spoken of in the literature as Gram-negative. The latter workers also stained the bacillus of symptomatic anthrax; and the *Bacillus tenuis*, at first Gram-negative, on a later test with the same technic, stained very well. They state, finally, that "a separation of the individual genera and varieties by Gram's stain now seems scarcely at all possible, since there are found within a single genus all stages, from those which stain well to those which stain poorly or not at all."

Notwithstanding these results, Gram's stain remains a valuable routine procedure, and one which is capable of conveying much information of interest; and, in so far as the gonococcus is concerned, it is a means of differentiating; at all events, it is a measure extensively used.

An intrinsic difficulty, and one usually most apparent just when it is desired to use the stain, is the tendency of the gentian violet solution to decompose, especially in warm weather, with the resultant loss of the entire solution and the time required to make a new one. Having had this happen with annoying frequency, I desired to find some way of obviating the difficulty.

Dr. E. Burville Holmes[3] has had success with the addition of 3 to 5 per cent. of glycerin to the stain, which he keeps in a dark, cool place. This procedure in my hands has not met success, the stain, in some instances, apparently deteriorating even more quickly. A search through the literature at hand revealed very little of interest.

Lehmann and Neumann[3] mention Czaplewski and E. Frankel as recommending, instead of anilin water, a 2.5 per cent. phenol water. This is stated not to decompose so soon as the anilin mixture. Muir and Ritchie[4] also recommend phenol water (1 to 20) and cite Kuhne's method in which the gentian violet is replaced by crystal violet in 1 per cent. ammonium carbonate solution. Beyond this nothing could be found.

After adding various substances to the staining solution without result, the question of a new solvent was taken up. It was found that a weak solution of formalin answered the purpose admirably. To make the solvent, 5 c.c. of commercial formalin (40 per cent.) are added to 95 c.c. of distilled water.

The stain can be made in the usual proportions of 16 parts of the stock solution (saturated alcoholic) of gentian violet to 84 parts of the solvent, or it can be made, as I prefer, in the proportion of 25 parts of the stock solution of gentian violet to 75 parts of solvent. Such a solution has been kept for over eight months in open test-tubes exposed to light and varying temperatures without deterioration.

It can be used just like the usual anilin solution, and decolorizes readily on the addition of alcohol. Should there be any doubt as to whether the preparation has decolorized completely, a drop of anilin-xylol (equal parts), followed by alcohol, will remove any uncertainty.

The advantages of the solution are obvious. It will remain good until the last drop is used; thus it is economical. No modification of the technic is necessary. Molds cannot grow in it. It will keep indefinitely. Preparations made with it are sterile—an advantage not to be overlooked if one is dealing with plague, glanders, or other virulent cultures.

It is hoped that the solution will prove as useful to others as it has been to me in the saving of time, patience, and materials.

2510 South Broad Street.

1. Lehmann and Neumann: Atlas of Bacteriology, p. 477.
2. Personal communication.
3. Lehmann and Neumann: Atlas of Bacteriology, p. 476.
4. Muir and Ritchie: Bacteriology, p. 110.

### UREMIA, SEQUEL TO SCARLET FEVER

VENESECTION AND RECOVERY *

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Acute uremias, dependent on intoxication from any cause, are of such uncertainty of occurrence and so serious in results that the report of a specific case with its treatment and recovery is not without justification. The case in question was sequel to a typically severe infection of scarlet fever which terminated on the sixteenth day by fall of temperature without complication, with no deficiency in urinary secretion or appearance of albumin.

The initial signs of the attack were first observed four days after the fall of temperature, with the child, a previously healthy boy of 7 years, in bed and on a liquid diet. In the evening of the fourth day, following a cup of broth, the patient was nauseated, but without emesis, and soon fell asleep. In the early morning following, when he had been thought to be sleeping, he was observed to be twitching about the muscles of the face, and to be unconscious instead of asleep. At 8 a. m. the rectal temperature, which had not been above 99 F., rose to 99 1/5 F., and at 2 p. m. was 104 2/5, with a bounding, somewhat irregular pulse of 116, from which rate it gradually rose, with marked irregularity and intermittency, to 136 at 11:30 a. m. of the following day.

Then, for practically twenty-two hours, hourly convulsions were observed and recorded, of varying severity, at times local, but usually general, noticed especially in the muscles of the face and extremities, though there was no marked retraction of the posterior muscles of the neck and no true opisthotonos. Acute and irregular strabismus of both eyes frequently occurred. The only contractures suggestive of focal involvement was, toward the latter part of the attack, the almost continuous twitching of the toes of the left foot. This was not observed in the other foot or in the hands. The child was unconscious during the entire period of the convulsions, for a greater part in a state of coma, though at rare intervals delirous and irritable, if touched or spoken to.

The temperature, during the attack, after rising to 104 2/5 degrees per rectum, varied between that and 103 2/5 degrees. The influence on the circulatory system was most pronounced.

* Presented before the Jackson County (Mo.) Medical Society, Jan. 13, 1909.

the pulse was markedly irregular and intermittent, varying from 116 to 136, of high tension, though of uncertain quality at times. The heart sounds were, of necessity, not observed closely during the convulsions, but toward the last were distinctly muffled, with a later developed systolic murmur, which lasted well into convalescence.

Edema, which was not present previous to the attack, soon began about the ankles and joints, and was especially marked about the shoulders, neck and face, though there was, apparently, no effusion into any of the serous sacks. The entire glandular system, including that of the skin and kidneys and of the alimentary tract, was inactive so far as any clinical evidence was concerned, for twenty-four hours, there being no perspiration, natural or induced, and no secretion from the mouth or bowels. At the end of twenty-four hours 2 ounces of urine were removed from the bladder by catheter, the only amount secured; this amount was probably residual urine, rather than a renal secretion during the attack.

Toward the last of the convulsive period, between 8 a. m. and 11 a. m., the coma became more and more marked; the skin of the face was very dusky, the body and extremities mottled, and the lips cyanosed. The respiratory rate, which had been from 20 to 26 and quite regular, grew slower and more difficult until characteristic Cheyne-Stokes breathing, of eight to ten respirations a minute, resulted.

The special senses, especially vision and hearing, showed their involvement as the patient later grew conscious and rational. It was interesting, though somewhat tragic, with the question of systemic and local result in the balance, to see the little patient strain his head toward a sound or voice that he heard, but did not distinguish, and then say, "I do not see you"; then, still later, failing to recognize a face or form, speak of the light burning above his head, and finally as he recognized his mother and others about him, show evidence that his special senses were being restored.

This was, in brief, the picture which presented itself for about twenty-eight hours, while Nature unassisted, though not without attempt to assist by the common and generally accepted measures, fought in her effort to overcome an unknown and suddenly developed enemy in her own structure. The measures resorted to during this attack of uremia had for their purpose the endeavor to lower the local and general congestion and circulatory pressure on nerve centers and in vital structures, and to eliminate from the whole system the known retained wastes which Nature was now unable to discharge, and other products of unknown origin and character, but extremely toxic in their influence on all animal tissues, the latter the probable cause of the convulsions.

To be specific, there was endeavor to stimulate all the emunctories which had ceased to act, and to stimulate and to bring to a state of equilibrium a very much disturbed circulatory system. No stress was placed on controlling the nervous system *per se*. Hot packs were regularly and continuously applied for purpose of provoking diaphoresis; calomel and Rochelle salts, with high enteroclysis of physiologic salt solution, were used, with hope both to eliminate and to dilute the toxins present and to assist in equalizing the circulation, and, if possible, to produce diuresis indirectly. In addition, nitroglycerin and digitalin were administered hypodermically for the peripheral circulation and diuresis. With a few other measures and minor details, such was the therapeusis for twenty-four hours—with results clinically negative. No diuresis occurred; the purging and enteroclysis showed no evident stimulation; perspiration did not occur, the skin remaining hot and dry. The circulation and respiration meantime growing weaker, venesection was advised and performed; the median cephalic vein of the right arm, after careful antisepsis, was opened and the child bled of between 8 and 10 ounces. This was at 11 a. m. with the child *in extremis*, a temperature of 103 2/5 degrees, pulse irregular, high tension and 136, with Cheyne-Stokes breathing, eight respirations to the minute; delirium and muscular twitching.

No convulsion occurred during or after the withdrawal of the blood. At 3 p. m. the breathing was 22, regular and easy, the temperature 102 3/5 degrees, the pulse 124 and more regular; the body was covered with perspiration, the child began to answer questions and was less irritable; at 7:45 p. m. 5 ounces of urine, loaded with albumin and casts, were removed by catheter.

From the time of removal of the blood no serious symptoms occurred and steady improvement followed hourly; hot packs, pilocarpin hypodermically, calomel and salines, with a liquid diet, were continued for twenty-four hours; this treatment then being gradually given up, since all the emunctories and in general the body functions were approaching the normal. On the third day, 52 ounces of urine were voided voluntarily, and natural and freely induced perspiration ensued, with marked improvement in the urinalysis. At the present time, several months later, an apparently perfect recovery has occurred.

603 Bryant Building.

## COMPOUND FRACTURE OF THE INFERIOR MAXILLA *

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RICHMOND, VA.

The exposed position of this particular irregular bone, as it is classed anatomically, explains the frequency with which the surgeon is called on to treat it. Fractures of this bone are always due to some form of violence, or to the extraction of a tooth, the usual seat of fracture being the anterior part of the body of the bone, between the mental foramen and symphysis, which is obviously in the line of least resistance, although no part of the bone is free from the possibility of a fracture. The case to which I invite attention bears out this statement anatomically.

*Patient.*—A very robust negro, aged about 30, an employee of the Seaboard Air Line Railway, blacksmith by trade, presented himself at my office not very long since. An hour before he had been struck with a sledge-hammer by a fellow workman on the right side of the chin.

*Examination.*—Patient was unable to articulate distinctly; saliva was dribbling, the teeth were uneven; there was an open wound just over the mental foramen externally, with a large spicule of bone projecting; the canine on the right side was very loose. On placing my finger in the mouth I detected the presence of bone, which was rather sharp and mobile, but fortunately had not lacerated the mucous membrane. The fracture was complete, transverse in the long axis of the mandible, with little, if any, antero-posterior obliquity. The displacement could be determined easily by inspection.

*Treatment and Clinical Course.*—The case was seen so early that very little swelling had occurred. Its reduction was easily effected by manipulation. The spicule of bone having been returned, the wound, which for obvious reasons was not sutured, was made aseptic. Although some of our best men advise the removal of the loose teeth at the point of fracture, I did not do so, but permitted the canine to remain; and this treatment was followed by good results. Retention of the fragments in position was sufficiently secured by bandaging the lower jaw to the upper by a single figure-of-eight chin and head bandage. Patient was sent to the Memorial Hospital and permitted to walk around in his room. Feeding with fluids was satisfactorily accomplished through the natural irregularities of the dental arcades, as there was no space due to the loss of teeth. The wound, being dressed daily, had practically healed on the fifth day. I made the bandage sufficiently tight to prevent the patient's opening his mouth and instructed those in attendance not to permit him to talk, but in the event it became necessary, to educate him to talk through his teeth, so to speak. His mouth was rinsed daily with antiseptic solution. At the end of the sixth day he insisted on going to his home, which was in the city; to this I gave my consent, but rather reluctantly, with the promise that he

* Read before the Association of Seaboard Air Line Railway Surgeons, Raleigh, N. C., Oct. 19, 1909.

should report to me on alternate days, which he did and at the expiration of two weeks the bandage was removed, not to be replaced. Careful examination at the seat of the fracture failed to reveal any deformity. The patient now began to partake of semisolid food, reporting to me every third day during the third and fourth weeks; at the expiration of the fourth week he was masticating anything he desired and was dismissed as cured; in other words, I did nothing for him except for the first two weeks.

While I do not wish to decry the use of the various devices employed in such cases, for I know of many in which the devices could not have been dispensed with, in this particular instance I could see no indication for their employment and therefore I simply used the roller bandage, with a happy result; to have used one of those devices would have been a useless expenditure and cumbrance to my patient.

The points I wish to emphasize in the care of this case are the following:

1. Despite the fact that conditions around railroad shops are rather conducive to infection in wounds of every character, and especially in compound fractures, yet in this case infection did not occur.

2. Not only was there no extraction of a tooth, as recommended by many, but I did not remove the one that was loose.

3. No apparatus of any kind was employed, and at the end of the second week the bandage was discarded and semisolid food masticated, the average case requiring a month.

I admit that this is a distinct departure from the ordinary custom and a considerable risk, but the progress was so unusual that I felt the conditions warranted the trial. It is impossible to obtain a text-book which covers every case, as all of us are willing to acknowledge, and it is in the exceptional case that we have to rely on our own resources.

The spicule of bone is accounted for by the fact that the velocity of the striking force, so to speak, was so high that there was an "explosive effect" and lateral transmission of energy to an extent sufficient to cause this solution of continuity; an example of this is seen in the modern missile. This destructive effect occurs only in certain organs and tissues (such as compact bone or organs containing fluid) because these organs and tissues best transmit the energy imparted by the missile. Had this sledge-hammer been moving at a lower velocity, the shock in the bone would not have been so great, the disruption consequently less, and a complete fracture, without the spicule of bone, would have been the result.

103 North Fourth Street.

**Predisposition to Cutaneous Affections After Acute Infectious Diseases.**—S. C. Beck has encountered more than 50 cases in which various skin diseases developed in children immediately after some acute infectious disease. This list does not include the numerous instances in which a tuberculous cutaneous affection developed after measles—the peculiar predisposition to tuberculosis left by measles is a fact too familiar for more than passing mention. He also excludes the numerous cases of folliculitis, furunculosis and pyodermitis following typhoid or pneumonia, restricting his study exclusively to the cases in which the skin after an acute infectious disease displayed an exceptional predisposition to the changes produced by toxic substances generated in the intestines, and it also seemed to be changed to a more favorable soil for various bacteria or other noxious influences from without. In 30 of his cases, urticaria, eczema or various rashes developed after vaccination in children free from any such tendencies in the past. He tabulates the details of 51 cases in the *Monatshefte für prakt. Dermatologie*, 1909, xlix, 432.

## BETTER ANESTHESIA IN MEDIUM-SIZED HOSPITALS

### SOME YEARS OF BROOKLYN EXPERIENCE *

ROBERT L. DICKINSON, M.D.

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BROOKLYN

Anesthetically, the hospital field in general, like all Gaul, is divided into three parts.

First come the great institutions which we of the hundred-bed class and two-hundred-bed class regard from afar, ascribing to them unlimited incomes. For them a salaried staff of expert anesthetists is possible, and from them it should be required. Indeed, the public would demand it if the public had any idea of how preposterously ill-balanced the operating-table often is with a resourceful and fearless expert at one end and a scared and clumsy novice at the other.

Next is the small group of private hospitals, which can hardly do better than follow the plan of Baldy and the Mayos, who train an intelligent woman to do that one thing well. Such salaried service is reliable and unvarying. The work is dignified and permanent. Under such conditions it would no longer be considered a makeshift position as it so often is at present by the men of the stop-gap services. Indeed, we may reasonably assume that physicians of moderate ability who have found themselves, in some ways, unsuited for general practice will be glad of a suitable income from such a source.

The third group is by far the largest. The country is covered with hospitals of medium size, in large cities as well as in small towns, where ether is administered in the most haphazard fashion. This is the serious condition which confronts us, and to meet it I am offering the following practical suggestions, as a step toward realizing the development of that perfected anesthesia toward which we have set our faces.

If we must, for the present, ignore ideals impossible to attain, let us see whether we find any hospitals which are able to maintain high standards of ether administration without raising the salary budget. Can it be done? It has been done by offering adequate inducements to men who are qualified, or inducements sufficiently great to cause men to qualify. They may be tendered one at a time, as a man develops, or all at once. These may be: (1) a title, such as "anesthetist to the hospital;" (2) membership on the visiting staff, or assistant visiting staff; (3) privileges, such as (a) use of operating-room for the anesthetist's own cases, or (b) a free bed or free beds; (4) fees for administering anesthetics to private patients whenever the operation fee warrants it; (5) the understanding that the surgeons of the staff will make operations done in private houses contribute toward the income of the anesthetist.

Chosen for fitness, an ex-intern who has shown natural aptitude for the work, or one of the attachés of the surgical staff who will undertake to give a reasonable time to the work, is elected by the professional staff as anesthetist. He appoints an associate or assistant, or more than one, according to the amount of surgical work done in that particular institution.

In this way responsibility is fixed. If patients are drowned in ether, or complications are frequent, or after-distresses prominent we know to whom to go.

* Given, in abstract, before the American Gynecological Society, April, 1909.

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Duties are defined. Whenever the staff rotates the anesthetist shall train the new house anesthetist or determine whether previous experience has qualified him. In the gravest charity operations always, and in others whenever called on by the operating surgeon, he shall give or supervise the giving of the anesthetic. In private cases, when called on to anesthetize, he may claim a reasonable fee, either in the form of a percentage of the fee or, preferably, as a separate charge. The separate charge adds dignity to the work and attracts a better type of man into it.

As to the period which the incumbent should serve, it is to be specifically understood at the time of appointment that the office is not a narrow stepping-stone, but that the work must be seriously undertaken for a time, such as two or three years. The surgeons do not bind themselves in any way to employ this hospital officer in their operations outside of the hospital. They should, however, extend a reasonable hope that if he will better the anesthesia and lessen the dangers in their charity surgery he will be rewarded by calls to their outside work. Success inside the building will eventually make the anesthetist wanted outside. So the situation takes care of itself, and to the young man an assured sum, even $500 or $1,000 a year, is no small matter. In regard to the length of time that the anesthetist shall give or supervise the anesthetics at the time of rotation of service of the house staff, this will depend on the capabilities and quickness of the particular intern who becomes house anesthetist. When a man is entirely inapt serious cases may have to be watched throughout his house service.

In any consideration of anesthesia we must not lose sight of our three obligations:

1. To furnish to the particular patient the best possible anesthesia.

2. To supply to the general public as many members of the profession as may be who will have a fair working knowledge of the administration of anesthetics. And our duty shall always be, first to the members of the house staff, and, incidentally, to advanced medical students.

3. To train for the profession, and for one's own hospital and for other hospitals, a few expert anesthetists.

The last two duties are in practice not incompatible with the first, for the reason that it is the general experience that a patient used for teaching is better studied by the teacher, and is cared for with more detail, than the less observed "case."[1]

The objections usually met are these:

1. The house staff may protest against the loss of this clinical experience. In actual practice it has been found that the fear of active protest is greatly exaggerated, the training highly appreciated, the nervous apprehension of the beginner quieted, and drudgery turned to intelligent progress, provided always that the right teacher-anesthetist has been selected.

2. The operator objects to the cost. It is all right where the fee is fair, but if a hundred-dollar laparotomy must have a ten-dollar ether fee and a ten-dollar microscopic opinion subtracted, there remains little for the surgery and nothing for the after-care.

The time is coming when the private patient will be regularly asked whether he is willing to pay for an ether giver. The bill will be rendered separately or in a separate item. Meanwhile, until the public is educated and its purse loosened, the subtraction will have to be a small one—say 5 per cent.

3. The work will be considered drudgery.

It is drudgery. So it must either be paid for or the present malpractice continue. The payment will be various—in money, in recognition, in promotion, in praise for improved results, and credit by the publication of these, and in the personal satisfaction in good work, bitterly needed and well done.

168 Clinton Street.

1. Brooklyn has a live society of anesthetists consisting of twenty members having active services and an average attendance of fifteen at its meetings. Anesthetists are officially on the staffs of the following hospitals, listed according to the priority of their appointments: Long Island College, Brooklyn, Williamsburg, Bushwick, Norwegian, Jewish, Swedish, Samaritan, Methodist Episcopal, Cumberland Street, Bethany, St. Peters, Prospect Heights.
It would seem, therefore, that the only cities in Europe or America that can claim a systematized practice of anesthesia are London and Brooklyn.

## TWO CASES OF PELLAGRA

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In view of the increasing prevalence of pellagra, I wish to make a brief report of two cases.

CASE 1.—The patient, a married woman, white, aged 30, had had no serious illness previous to the spring of 1907, when she had an eruption on the side of the neck and backs of her hands. This improved during the summer but recurred in the spring of 1908 and did not disappear as before. In November, 1908, the patient consulted me, complaining of weakness and dyspnea after exertion and of loss of memory. On Dec. 24, 1908, I saw the patient again and found a dermatitis resembling sunburn on the back of both hands and sides of the neck. In the center of this eruption was a reddish, shiny appearance of the skin, the edges having a brownish, dirty look. No other symptoms were noted except increasing loss of strength. A gastritis and enterocolitis soon followed with diarrhea and vomiting. There was lack of feeling in the stomach and bowels. The bowel movements contained blood and mucus. The bladder was completely paralyzed and there was vaginitis. These symptoms grew stedily worse until the patient's death, Jan. 5, 1909.

CASE 2.—This patient was a white woman, married, aged 30. There is nothing of special interest in the family and personal history except that the patient's diet had consisted largely of corn-bread until the last few months, when she could not eat it at all. Digestive disturbances had been present for several months, consisting of constipation, followed by pain in the abdomen and loss of appetite with diarrhea. The eruption appeared on the backs of the hands about January, 1909. The skin on the dorsal surface of both hands was red and shiny. Stomatitis was especially marked and the mucous membrane of the throat very much reddened. There was vaginitis and urethritis, and the skin around the rectum and vagina was inflamed for an inch, beyond which was a roughened scaly eruption. The patient had great pain on defecation. Physical examination of the chest revealed nothing abnormal. With the exception of anemia the blood and urine were normal. Temperature varied from subnormal to 100 F. The inflammation of the skin around the vagina and rectum became pustular, but this cleared up after using a solution of bichlorid of mercury, 1 to 2,000. The patient continued to grow weaker both physically and mentally until her death, Aug. 27, 1909.

Both patients had used a great deal of corn-bread. Further than this the histories throw no light on the etiology.

**Greatness.**—It is not by birth nor by pedigree but by push that the high places are reached. The men with soft raiment are usually soft all the way through. They are not built for the storms. Greatness is not born under the gambler's roof nor in the inebriate's rendezvous. The manhood of the meadows is mightier than the majesty of the mansions.—*United Presbyterian.*

## A CASE OF SPLENIC LEUCEMIA

JOSEPH PLACAK, M.D.
CLEVELAND, OHIO

This case is an interesting one on account of the enormous numbers of leucocytes which were present. The ratio between the white and the red cells, the high percentage of myelocytes, and the excessive number of white cells makes this case one worthy of reporting. Several times during the course of the disease the white cells were 500,000 and over in excess of the red cells.

*Patient.*—S. B., aged 30, an American woman, white, housewife; family and personal history negative; had had the usual diseases of childhood; mother of two children. She complained of becoming weak, fatigue on the slightest exertion, marked dyspnea, and slight hemorrhages from the mouth. Later the patient was able to feel the enlarged spleen.

*Examination.*—Development good; nutrition fair; considerable anemia; puffiness of eyelids; slight edema of ankles; glands not generally enlarged; lungs and heart negative but for a hemic murmur.

Left side of the abdomen rounded and prominent. Prominence extended beyond the median line. Mass could be palpated and extended close to the symphysis pubis, smooth with rounded borders. Numerous blood examinations were made over periods of several weeks. Hemoglobin varied from 40 to 25 per cent., increasing for a time on the administration of iron and arsenic. Red cells varied from 1,250,000 to 2,250,000. The interesting feature of the case was the enormous leucocytosis which was attained (1,820,000) and which persisted for a few weeks. Differential counts showed as high as 27 per cent myelocytes.

Shortly before death the axillary, cervical and inguinal glands became enlarged. I have observed this in two other cases of supposedly purely splenic type. No autopsy was obtained.

420 Rose Building.

## HEMORRHAGE FROM NIPPLES

L. BUCKLE, M.D.
NEW YORK CITY

M. G., aged 26, iii-para, has enjoyed good health for many years. She had no morning sickness or other illness with present or previous pregnancies. Labor was always comparatively easy and normal. She never had trouble with her breasts.

One week before her present confinement, while massaging the breasts, she noticed some blood ooze from the left nipple. The oozing increased from day to day. There was no pain or tenderness on pressure of breasts. Seven days after she noticed the blood from the left breast she gave birth to a normal child. Oozing from the right nipple was then noticed. At this time both breasts were always wet with blood. The least pressure would increase the flow of blood considerably.

On the sixth day after the birth of the child, no change was noticed in the left breast but the right one showed a few drops of milk after some oozing of the blood. On the following day the oozing from the right breast was no more blood but milk. The left breast, however, kept on bleeding for another week before milk was seen to flow from it.

In the literature at my command I have not been able to find any similar case. Several things may be deduced from this case: 1. There need be no special alarm about bleeding from the breasts at the end of pregnancy or a week or two after the birth of the child. 2. Bleeding from this source is self-limited and does not have any ill effect on the patient. 3. It requires no medical treatment.

321 East Tenth Street.

## Therapeutics

### DRUGS AND THE UNITED STATES PHARMACOPEIA

While dictionaries, directories and encyclopedias must be arranged alphabetically for ready reference, alphabetical arrangement of drugs for the practicing physician is very unsatisfactory. Also, for a practicing physician, classifications based on chemical constituency, pharmacologic peculiarities, or toxic action are absolutely of no value. A drug may have a chemical, physiologic or toxic activity that if of no value from a therapeutic standpoint.

The classification always of value and always necessary for the practicing physician is one based on therapeutic uses. In other words, for utility, drugs must be classed according to the objects for which they are to be used. For instance: Drugs used to diminish secretion (astringents); drugs used to cause vomiting (emetics); drugs used to dilate the blood-vessels, etc.

Such a classification does not include drugs that may have these activities incidentally or in toxic doses, but the drugs that the physician would use to promote the object desired. Under such headings, the drugs only should be named that accomplish the object desired the most efficiently. It is positively absurd to name under such a classification a lot of useless second-, third- and fourth-rate drugs, or drugs that accomplish the object desired much less efficiently than do drugs of the first rank. It is also manifestly needless, useless and an unnecessary hardship to require medical students to acquire a knowledge of a drug that is rarely, if ever, and perhaps should never be, used in the practice of medicine. It is also just as absurd to require a student to learn a list of preparations of a drug, two-thirds of which are useless or never used, when two or three preparations of that drug, and often only one, are all that should be used therapeutically.

In other words, the United States Pharmacopeia is replete with a lot of useless drugs and preparations so that its usefulness for the practitioner is lessened.

The object of the editorials under this section on this subject is to create sufficient interest among the profession that instructed delegates to the Pharmacopeial Convention of next May, at Washington, will request the Committee on Revision to prepare the Pharmacopeia of 1910 in such form as to be of practical scientific utility.

The following classification, arranged according to therapeutic indications, is copied from Osborne's small text-book on "Materia Medica and Pharmacology."

While it could not be claimed that this enumeration of drugs comprises all that are of value, it does comprise some of the best, and any drug that aspires to a place in such a classification must show positive physiologic activity and therapeutic success to prove that it should be classed among these, the best drugs. Under each heading the drugs are named alphabetically, not because the first drug named is better than the last.

Later, in this department, the best preparations of the drugs in the most important classes will be named. Also, the drugs used for the same objects and official in the present Pharmacopeia, but of second- and third-rate values, will be enumerated and their omission from the next Pharmacopeia urged.

It is probable that, in such an enumeration of drugs of second- and third-rate value, physicians in different parts of the country will be horrified to find a pet drug or preparation condemned. Such an enumeration or condemnation does not declare that a drug is not of value as used by the individual physician, but it simply declares that there are other drugs and preparations that

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are better. Therefore there is no excuse for continuing a second-rate drug officially in the Pharmacopeia. This is no more radical advice than to declare that there is an improved instrument, bandage, splint or appliance that is better than one that was made and used several years ago. The individual physician or surgeon may still get perfect success out of the old apparatus, but that is no excuse for recommending it as of equal value to the new improved apparatus.

## First Division

*For Local Action*

### CLASS 1.—Drugs Used to Destroy Micro-organisms

(a) *To disinfect* (Drugs too strong to be used on the body). For buildings: Formaldehyd, Sulphurous Acid, Steam. For clothing: Formaldehyd, Heat. For dejecta: Chlorinated Lime.

(b) *To inhibit the growth of bacteria on the body or in one of its cavities* (Antiseptics). Alcohol, Cresol, Formaldehyd solution, Hydrogen Dioxid solution, Mercuric Chlorid, Phenol, Salicylic Acid.

(c) *To destroy skin-parasites* (Parasiticides). Beta-naphthol, Chrysarobin, Ichthyol, Iodin, Mercury, Pyrogallol, Resorcin, Sulphur, the above Antiseptics.

### CLASS 2.—Drugs Used on the Skin

(a) *To protect* (Dressings). Acetanilid, Bismuth preparations, Boric Acid, Iodin synthetic powders, Lycopodium, Talcum, Zinc Oxid, Zinc Stearate.

(b) *To soothe* (Emollients). Almond Oil, Boroglycerid, Cacao Butter, Glycerin, Olive Oil, Petroleum Oils, Wool Fat.

(c) *To cause hyperemia* (Mild counter-irritation). Tincture of Iodin, Liniments, Mustard.

(d) *To blister.* Cantharides.

(e) *To corrode* (Escharotics). Chromic Acid, Glacial Acetic Acid, Nitric Acid, Potassium Hydrate, Salicylic Acid, Silver Nitrate, Trichloracetic Acid.

### CLASS 3.—Drugs Used to Act on Mucous Membranes

(a) *To soothe* (Demulcents). Albumin water, Barley water, Flaxseed infusion, Milk, Warm Physiologic Saline solution, Slippery Elm infusion.

(b) *To diminish secretion* (Astringents). Alum, Bismuth Salts, Weak Silver solutions, Suprarenal preparations, Tannic Acid, Weak Zinc solutions.

(c) *To stimulate.* Copper Salts, Silver Salts, Zinc Salts.

### CLASS 4.—Drugs Used for Local Action in the Stomach

(a) *To increase the appetite* (Stomachics). Cinchona, Gentian, Nux Vomica, Salicin, Vegetable Bitters.

(b) *To aid digestion.* Diastase, Hydrochloric Acid, Pancreatin, Pepsin.

(c) *To reduce acidity* (Antacids). Ammonia, Chalk, Lime Water, Magnesia, Sodium Bicarbonate.

(d) *To cause vomiting* (Emetics). Apomorphin (acting on the vomiting center), Copper Sulphate, Ipecac, Mustard, Zinc Sulphate.

### CLASS 5.—Drugs Used for Local Action in the Intestinal Canal

(a) *To increase peristalsis* (Carminatives). Anise, Capsicum, Cardamom, Cinnamon, Peppermint.

(b) *To promote evacuation of the bowels.*

| *Laxatives* | *Purges* | *Salines* | *Irritants* |
|---|---|---|---|
| Aloes | Calomel | Magnesium Citrate | Colocynth |
| Euonymus | Castor Oil | | Croton Oil |
| Magnesia | Comp. Cathartic Pill | Magnesium Sulphate | Elaterium |
| Podophyllum | Large dose of any laxative | Potas. and Sod. Tartrate | Jalap. |
| Rhamnus Pursh. | | Seidlitz Powder | |
| Rhubarb | | Sodium Phosphate. | |
| Senna | | Sodium Sulphate. | |
| Sulphur | | | |

(c) *To correct fermentation.* Beta-naphthol, Thymol, Salicylic Acid, Phenyl Salycilate (Salol).

(d) *To remove Parasites* (Anthelmintics). Aspidium, Beta-naphthol, Pepo, Quassia, Spigelia, Thymol.

## Second Division

*For Systemic Action*

### CLASS 1.—Drugs Used to Act on the Skin After Absorption

(a) *To stimulate.* Arsenic, Thyroid.

(b) *To decrease perspiration.* Atropin, Sulphuric Acid.

(c) *To increase perspiration* (Diaphoretics). Alcohol, Antipyrin, Pilocarpin.

### CLASS 2.—Drugs Used to Act on the Genitourinary System

(a) *To increase the amount of urine.* Buchu, Caffein, Digitalis, Scoparius, Squill, Water.

(b) *To modify the character of the urine.* Hexamethylenamin, Methylene Blue, Potassium Acetate, Potassium Bicarbonate, Potassium Citrate, Salicylic Acid, Salol.

(c) *To stimulate the mucous membranes.* Cantharides, Copaiba, Cubebs, Oil of Santal.

(d) *To increase menstruation* (Emmenagogues). Iron, Manganese Dioxid, Thyroid.

(e) *To contract the uterus* (Oxytocics). Ergot, Hydrastis, Quinin, Viburnum.

### CLASS 3.—Drugs Used to Act on the Respiratory Tract

(a) *To increase the secretion of mucous membranes.* (Expectorants). Ammonium Chlorid (small doses), Ipecacuanha, Iodids.

(b) *To decrease the secretion of the mucous membranes.* Ammonium Chlorid (large doses), Atropin, Codein, Heroin, Morphin, Terpin Hydrate.

(c) *To relax spasm.* Atropin, Bromids, Chloral, Gelsemium, Morphin, Nitroglycerin, Stramonium, Tobacco.

### CLASS 4.—Drugs Used to Act on the Circulation

(a) *To stimulate the heart.* Alcohol, Ammonia, Camphor.

(b) *To depress the heart.* Aconite, Veratrum.

(c) *To strengthen the heart.* Caffein, Digitalis, Strophanthus, Strychnin.

(d) *To contract the blood-vessels.* Atropin, Ergot, Suprarenal.

(e) *To dilate the blood-vessels.* Nitrites.

### CLASS 5.—Drugs Used to Act on the Nervous System

(a) *To stimulate* (Cerebral Stimulants, Antispasmodics, Excitomotors). Asafetida, Caffein, Camphor, Cannabis Indica, Phosphorus, Strychnin, Thyroid, Valerian.

(b) *To depress* (Analgesics; Depresso-motors). Acetanilid, Aconite, Antipyrin, Belladonna, Bromids, Chloral, Lobelia, Opium, Phenacetin.

(c) *To produce sleep* (Hypnotics). Bromids, Chloral, Hyoscine, Paraldehyd, Sulphonal, Trional, Veronal.

(e) *To produce anesthesia.* General: Chloroform, Ether, Nitrous Oxid. Local: Cocain, Ethyl Chlorid, Ice, Menthol, Phenol.

### CLASS 6.—Drugs Used to Lower the Temperature of the Body

(Antipyretics). Acetanilid, Antipyrin, Cold, Phenacetin.

### CLASS 7.—Drugs Used for Actions Which are Specific

Antitoxin in Diphtheria.
Cinchona in Malaria.
Colchicum in Acute Gout.
Iodids in some disturbances of Metabolism, notably Sclerosis (in small doses long continued).
Iron in Anemia.
Mercury in Syphilis.
Salicylic Acid in Acute Arthritis.
Thyroid in Myxedema.

### CLASS 8.—Unclassified Organic Extracts

Mammary.
Ovarian.
Pancreas.
Parotid.
Pituitary.
Testicular.
Thymus.

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[For other information see second page following reading matter]

SATURDAY, DECEMBER 11, 1909

## OPTIC NEURITIS AND TUMORS OF THE BRAIN

Ophthalmoscopy has become a routine procedure in neurologic examinations, and the information thus gathered has been of inestimable service in the diagnosis and therapeutics of nervous diseases in general. In the solution of the special problem of tumors of the brain, however, ophthalmoscopic examination has been less serviceable; while it has indicated the presence, it has done little to establish the localization or the type of such neoplasms.

If ophthalmoscopy was to furnish this much-desired information, thorough, comprehensive study was necessary of the ophthalmoscopic pictures and their relation to the character, location, and size of the new growth within the cranial vault; and fortunately such study has been made. In a comparatively recent paper[1] Leslie Paton has presented a most thorough and interesting analysis of about four hundred cases of brain tumor from the records of the National Hospital for Paralyzed and Epileptic in London. A feature which gives special value to this study is that all of the brains were examined either post-mortem or in the living body in the course of surgical procedures which permitted adequate observation.

Passing over many technical points, which cannot be adequately reviewed here, three groups of facts are worthy of comment: that is, those dealing with the incidence and severity of the optic neuritis, with the location of the tumor, and with the eye changes—points of paramount importance to the ophthalmologist, neurologist, and psychiatrist.

Paton is far from dogmatic in his assertions, but regarding incidence of the optic neuritis he reaches the following conclusions:

1. When a tumor, directly or indirectly, exercises constant pressure on the chiasm or on the optic nerves, it is likely to cause a primary atrophy without any preceding edema of the disc.

2. The absence of optic atrophy is not infrequently indicative of meningeal tumors without involvement of the brain substance.

3. There are two regions of the brain, the pons Varolii and the white matter of the cerebral hemispheres, in which tumors frequently develop without causing optic neuritis.

1. Paton, Leslie: Brain, 1909, xxxii, No. 125.

Concerning the severity of the neuritis, the amount of retinal swelling, as measured by the height, the turgescence, and capillary congestion, offers a fairly reliable guide; so do hemorrhages and dusky, yellowish patches of exudate. An equally important element in the picture is the extent to which the neighboring retina is affected by the spreading of the edema from the neighborhood of the disc. In certain very severe cases a macular fan shows a spreading edema. This is evidence of a neuritis of gross character, and never appears with the lower degree of swelling. Loss of sight is a very unsatisfactory indication of the severity of the neuritis.

Some of the most interesting facts that may be gathered from this extensive paper concern location, and the conclusions drawn therefrom furnish almost the only general guides in this difficult field. Precentral tumors, Paton says, are nearly always associated with a fairly severe neuritis, whereas postcentral tumors are nearly always associated with a neuritis which is as a rule moderate and often of very short duration.

A neuritis of severe grade is found, moreover, with tumors of the optic thalamus and midbrain, while cerebellar and extracerebellar tumors of the posterior fossa cause a neuritis of a grave character, but apparently less severe than the preceding.

Temporosphenoidal tumors are almost invariably associated with a neuritis as grave as precentral or frontal tumors, while subcortical tumors develop a neuritis in only about 50 per cent. of the cases and this, when present, is as a rule mild and, with parietal tumors particularly, of short duration.

In practically one-half of the cases a difference in severity of the neuritis in the two eyes may be noted, sometimes being greater on the side of the tumor, at other times on the opposite side. This difference, then, is an untrustworthy sign and should be disregarded. The pathologic nature of the tumor does not in itself play any part in determining the onset of the neuritis, except in so far as the nature of the tumor determines its location. The age of the patient in itself bears little or no relation to the occurrence of neuritis.

This contribution of Leslie Paton's will undoubtedly give some assistance in the difficult task of the localization of cerebral neoplasms and should serve to emphasize the desirability of more searching ophthalmoscopic examinations on the part of both nerve and eye specialists.

## THE EPIDEMIOLOGY OF TYPHOID FEVER

It is but little more than half a century since typhoid fever became first recognized as a disease different from other "slow" or "continued" fevers or even distinct from typhus fever. And yet in few other diseases has greater progress been made toward definite conceptions of cause, mode of spread and manner of prevention.

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The realization of the part played by contaminated drinking-water came very early in the study of modes of dissemination of this infection. It is natural that this should have been the case in view of the explosive character and frequent striking localization of water-borne outbreaks. Epidemics like those at Plymouth, Ithaca and Butler in this country tend to focus attention on drinking-water as a primary source of infection. The practice of distributing to the inhabitants of cities raw drinking-water mixed with sewage is, however, steadily receding. It is not necessary to recapitulate here the various procedures by which improvement of public water-supplies has been brought about. Although much still remains to be done, especially in the United States, it cannot be questioned that the reduction in the amount of water-borne typhoid in the last twenty-five years in all civilized communities has been enormous.

As often happens in infectious diseases, the steady diminution of typhoid cases due to one cause has brought into prominence other factors previously unnoticed or regarded as of little significance. Sanitary authorities everywhere have found that the complete eradication of typhoid fever, a typical "preventable" disease, is one of the most difficult of public health problems. It has happened more than once that after a community has obtained a pure and uncontaminated water-supply the typhoid mortality has remained excessively high. The experience of the city of Washington, D. C., affords a well-known illustration of the subordinate rôle that may be played by drinking-water in causing typhoid in a great city. The typhoid fever that still occurs in a community after the public water-supply has been effectively purified has sometimes been designated as "residual" typhoid, but the term seems to be an unfortunate one so far as it implies that the major source of infection has been removed by the elimination of infected water. For it must be admitted that in a great many communities, in this country and in Europe, drinking-water is at the present time a subordinate factor in the causation of typhoid fever. It seems necessary to emphasize this fact, since exaggerated statements have sometimes found utterance; such, for example, as the view expressed by a well-known sanitary engineer to the effect that the universal purification of water-supplies would do away altogether with typhoid fever, or the popular saying, apparently based on the assumption of official negligence in the matter of water-supply supervision, that "for every case of typhoid fever some one should be shot." Naive expressions of this sort can do only harm. It would be well if the general public realized more keenly some of the difficulties in the way of the complete suppression of typhoid fever.

These difficulties have been made apparent to some extent by the investigations of typhoid fever in Washington, published by Rosenau and his associates, and they are again brought to light in Kayser's study of this disease in Strasburg.[1]

From Kayser's observations, which extend over more than three years, it appears that raw milk is credited with causing in all probability 26.7 per cent. of the cases, while only 14.6 per cent. could be traced to water infection (including infection while bathing). Contact with typhoid patients—mostly atypical cases—was apparently responsible for 16.8 per cent. of the cases, while as many as 9.5 per cent. were found to be due to the agency of typhoid carriers! Other less important sources of infection were discovered, such as the consumption of infected food substances and contact with infected clothing or with the contents of privy vaults. In about 13 per cent. of the cases, the disease seemed to have been contracted outside the city. In all, about 87 per cent. of the typhoid cases in Strasburg could be traced to a plausible origin. Kayser seems inclined to attribute the 13 per cent. of unknown origin in large part to the agency of unrecognized typhoid carriers; and certainly the facts in the body of his paper countenance this view. It may be noted that this experienced investigator apparently does not attach so much importance to insect carriers as do many recent American writers.

Among the noteworthy points brought out in the Strasburg investigation is the existence of "typhoid streets" or localized areas in which the disease is disproportionately prevalent. A remarkable liability on the part of certain occupations is likewise observed. Not only is the mortality among professional nurses very high, but the number of cases occurring in persons having to do with the handling and preparation of food substances is amazingly great. Bakers, cooks and milk dealers all have a much higher mortality (1.1 per cent.) in proportion to the numerical strength of their respective occupations than agricultural workers (0.12 per cent.) or employees in paper or textile factories (0.0 per cent.). As Kayser says, in Strasburg typhoid fever can almost be considered as an occupational disease.

Kayser's investigations do not tend to minimize the importance of the bacillus-carrier as an agency in spreading typhoid. Of the twenty-eight known carriers in Strasburg, eleven were definitely implicated in the causation of new cases and nine of the others were with less certainty under suspicion of having disseminated the infection. The difficulties in the way of placing restraint on the occupational freedom of known typhoid carriers are strongly set forth in Kayser's paper. There can be no doubt that control of the sources of infection in typhoid fever offers a serious problem to the public health administration.

1. Kayser, Heinrich: Die Art der Typhusausbreitung in einer Stadt (nach Strassburger Beobachtungen), München. med. Wchnschr., May 25 and June 1, 1909, lvi, 1066-1130; abstr. in THE JOURNAL A. M. A., July 17, p. 244.

## TRAMMELING THE SANITARY DEPARTMENT OF THE CANAL ZONE

The work of the Department of Sanitation in the construction of the Isthmian Canal has been closely observed by sanitarians all over the civilized world. In fighting disease, much depends on the accuracy of the information and the promptness with which it is received. Frequent communications between boards of health are as necessary as weather bulletins. The progress of an epidemic, the discovery of new methods of overcoming disease, if transmitted at once to other health officers, may mean the saving of thousands of lives. Frequently issued and widely distributed sanitary bulletins are of the greatest value. Most of the states and a large number of cities issue monthly health reports. The United States government maintains in Manila a sanitary department for the control of diseases in the Philippine Islands which publishes health reports regularly. The United States Public Health and Marine-Hospital Service also publishes weekly reports. All of this matter is carefully scanned by modern health officers and thus the knowledge and experience of one is of assistance to all.

One of the most important things done by Colonel Gorgas, chief sanitary officer of the Canal Zone, was the monthly publication and distribution of the Report of the Department of Sanitation of the Isthmian Canal Commission, which was eagerly looked for and carefully read by all officers of health, not only for information regarding the suppression of disease in the Canal Zone, but also for valuable data on general sanitation and the control of diseases, especially in the tropics. This monthly pamphlet was regarded by sanitarians everywhere as of the greatest value and among the most important of the publications on tropical diseases. It was also of great value to the Department of Sanitation itself, for it brought to it, through exchange, similar publications from other workers, at home and abroad.

It was, therefore, with surprise and regret that sanitarians learned that in March, 1909, the publication of these reports was discontinued by order of Lieutenant-Colonel George W. Goethals, the army engineer officer in charge of the construction of the canal, who evidently did not know that the results obtained by the Department of Sanitation were of interest either to the public or to the medical profession.

In reply to a letter sent from THE JOURNAL, asking why the reports were no longer sent out, the Isthmian Canal Commission stated that the printing of these reports had been discontinued, but that "brief synopses of the reports of the Department of Sanitation have appeared in the monthly reports of the chairman of the commission, which have been published regularly in the *Canal Record*." Examination of seven consecutive numbers of the *Record*, running from June 30 to Aug. 11, 1909, shows that many pages have been devoted to reports from the engineering and construction departments and that much space has been taken up by the monthly record of the performance of steam shovels, building construction, record of excavation, tables showing the height of the tide, amount of rainfall, the exact height of the Chagres River, the rebuilding of the Panama Railroad, the classification of accounts, the awards of contracts, wage classification of employees, and even the social doings on the Isthmus, including clubs, lectures, dances, bowling and indoor baseball, but that less than one column in the seven numbers has been devoted to the work of the Department of Sanitation. Yet even in this small space the surprising record made by the department is evident, since the report shows that the death-rate in the Canal Zone has been reduced from 50.57 per thousand in June, 1905, to 16.42 per thousand in June, 1909, and that, although there were 97 deaths in June, 1906, when the employees numbered only 28,010, there were in June, 1909, only 37 deaths, 60 less than in June, 1906, although the number of employees had increased to 47,493. And yet the Canal Commission considers these facts, showing one of the most brilliant sanitary records ever made, of no interest to the public and of little or no importance to sanitarians.

The work done by Colonel Gorgas in the Canal Zone has been a most striking object-lesson to the people of the United States as to the ability of modern sanitary methods to control disease. It has also had a valuable educational effect on the American public. It is highly probable that if the Department of Sanitation had not made the showing which it has in the suppression of disease, and if it had not sent its reports broadcast, the Canal Commission would now have great difficulty in securing employees. The influence of these monthly reports on health conditions in neighboring Central American states is by no means to be underestimated. Yet their publication and distribution are forbidden on the grounds of economy, when their actual cost to the government is less than $200 a month. What would be thought of a chief sanitary officer if he assumed to veto the plans of the directing engineer for bridges, tunnels, and grades in the railroad work in the Canal Zone? How much importance would the American public attach to the opinions of a medical officer on the strength or position of dams and locks or the construction of steam shovels used in canal construction? Yet this is no more ridiculous than for an engineering officer to attempt to dictate to the Department of Sanitation as to technical details in sanitary matters. The work done by the Department of Sanitation is of vital importance to the completion of the canal, and the American people, when they fully understand the situation, will not only demand that the chief sanitary officer of the Isthmus be allowed to continue his work untrammeled, but that the widest publicity be given to the results obtained in his department in order that all diseases, and especially those peculiar to the tropics, may be further controlled and, if possible, eliminated.

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## THE VINDICATION OF GALL

Most physicians know the name of Gall because they have heard of the columns of Gall and Burdach in the spinal cord; but few realize that the Dr. Gall who is thus commemorated is the father of so-called phrenology—that is, the attempt to determine intellectual capacity and mental characteristics from the appearance of the skull—and also the pioneer discoverer of the physiology of the brain. Dr. Bernard Hollander, who is president of the Ethnological Society and physician to the British Hospital for Mental Disorders, has spent many years in vindicating the reputation of this great anatomist of the brain from undeserved aspersions and from exaggerated pretensions made by disciples.[1] Gall's career illustrates the penalties of being before one's time in knowledge. It is dangerous to discover, before men's minds are prepared for the truth, the circulation of the blood, or that the heart is a muscle, or that the earth moves, because, as Harvey and Steno and Galileo realized to their cost, men do not like to have their cherished beliefs turned to foolishness.

At the end of the eighteenth and the beginning of the nineteenth century four men in Paris startled the scientific world, gained a momentary celebrity, and then lapsed into oblivion. They were Cagliostro, Lavater, Mesmer and Gall. A good idea of Cagliostro's character may be obtained from Dumas' "Memoirs of a Physician." Lavater did good work in physiognomy, as any one who goes back to his books will readily appreciate, but he utterly exaggerated the significance of his observations. What Mesmer exploited under the name of "animal magnetism" has been used by quacks ever since, under one name or another; but it must not be forgotten that what he did forms an important chapter in the history of psychotherapy. Cagliostro, Lavater and Mesmer had more of the charlatan than of the scientist in them. The fourth, Francis Joseph Gall, undoubtedly made the best investigations on the brain that had been made up to his time, but because what he discovered was contrary to popular belief his work came to be ranked with that of the charlatans.

Now comes the vindication of Gall. Several discoveries in the anatomy of the nerves undoubtedly belong to him. He was the first to show that the gray matter precedes the white in origin and in importance; he traced the origin of the nerve bundles from the gray matter and taught that the gray substance nourished the white fibers. He traced the origins of the olfactory, the oculomotor, the trigeminal and the abducens nerves. He established the certainty of the decussation of the pyramids, when such men as Bichât, Magendie, Morgagni and Prochaska were opposed to it. Above all, he was the first to describe the formation and development of the brain in the fetus and to call attention to the simplicity of the convolutions in new-born infants and in idiots, as compared with the complexity of the brain of the normal adult. Many of these discoveries are usually referred to other anatomists. A typical example of a wrong done to Gall is the naming of the island of Reil, which Gall had described long before, after another anatomist of his time, who had been present at some of Gall's demonstrations. These discoveries of Gall are now generally acknowledged.

The reason Gall did not receive recognition during his lifetime apparently was that Napoleon in some way acquired a prejudice against him; hence it became fashionable to disparage Gall. Before this some of his contemporaries had been most enthusiastic in their praise of his work. Flourens, whose own observations on the brain made at this time are of so much value, declared: "I shall never forget the impression I received the first time I saw Gall dissect a brain. It seemed to me as if I had never seen this organ." Geoffroy St. Hilaire, the famous French naturalist, who tried, before Napoleon's displeasure was known, to obtain Gall's election to the French Academy, wrote: "I shall always remember our astonishment, our sensations, our enthusiasm, on seeing Gall for the first time demonstrate his anatomic discoveries. The word 'brain' will always call up to mind the name of Gall." For many years Gall lived in obscurity. Toward the end of his life some slight honor for all his work came to him. His monument in Père Lachaise, where he lies buried, has recently been renovated; and now it would seem that at last his merits are to receive the appreciation that they so richly deserve.

1. Hollander, Bernard: The Unknown Life and Works of Dr. Francis Joseph Gall. An Inaugural Address delivered before the Gall Society on May 15, 1909. Paper. Pp. 31. Price, one shilling. Published for the Gall Society by Siegle, Hill & Co., 2, Langham Place, London, W.

## THE PRESIDENT'S MESSAGE AND THE PROPOSED NATIONAL BUREAU OF HEALTH

The movement originally instigated and long fostered by the medical profession for more comprehensive national health service has received a distinct impetus from President Taft in his message laid before Congress on Tuesday of this week. The part of his message relating to this subject is as follows:

"For a very considerable period a movement has been gathering strength, especially among the members of the medical profession, in favor of a concentration of the instruments of the national government which have to do with the promotion of public health. In the nature of things, the Medical Department of the Army and the Medical Department of the Navy must be kept separate. But there seems to be no reason why all the other bureaus and offices in the general government which have to do with the public health or subjects akin thereto should not be united in a bureau to be called the 'Bureau of Public Health.' This would necessitate the transfer of the Public Health and Marine-Hospital Service to such a bureau. I am aware that there is a wide field in respect to the public health committed to the States in which the Federal Government cannot

exercise jurisdiction, but we have seen in the Department of Agriculture the expansion into widest usefulness of a department giving attention to agriculture when the subject is plainly one over which the states properly exercise direct jurisdiction. The opportunities offered for useful research and the spread of useful information in regard to the cultivation of the soil and the breeding of stock and the solution of many of the intricate problems in progressive agriculture have demonstrated the wisdom of establishing that department. Similar reasons, of equal force, can be given for the establishment of a bureau of health that shall not only exercise the police jurisdiction of the Federal Government respecting quarantine, but which shall also afford opportunity for investigation and research by competent experts into questions of health affecting the whole country or important sections thereof; questions which, in the absence of federal governmental work, are not likely to be promptly solved."

This subject has been discussed by President Taft from the viewpoint of both the jurist and the practical statesman. Addressing himself primarily to the constitutional question involved, he has anticipated the argument that has perennially been brought forward by the enemies of every measure that contemplated the control by the national government of interests susceptible of concurrent control by the states. This argument was urged long and successfully against the organization of both the Department of Agriculture and the Department of Commerce and Labor, but in both instances a broader and wiser interpretation of the Constitution prevailed. No cry of "special legislation" can be raised against a national public health bureau, since no class or social group will be the special beneficiary of such a step. This was recognized a few years ago, when, in the presence of an invasion of yellow fever, the governors of the southern states, in formal conference, yielded certain prerogatives in sanitation to the Federal Government. This action, from those who had jealously guarded the rights of their states, was a forceful recognition of the fact that sanitary regulation for the general welfare ought to be a function of the general government. If a constitutional way can be found for the federal control of yellow fever, why may it not be found for the federal control of tuberculosis, cancer and typhoid? It would seem that the President is disposed to go as far in this direction as his acute and professional intimacy with the Constitution will permit.

The recommendation of President Taft may be a disappointment to those who feel that our national health interests require a separate department with a secretary. It is, however, one thing to wish for a thing and quite another to get it, either for the President or the people, since both must recognize that an evolutionary process has been established through which administrative agencies must pass. A bureau of agriculture, for instance, with a commissioner in charge, was established in 1862, but did not become a department until 1889. A bureau of labor and other bureaus, each in charge of a commissioner, preceded the organization of a Department of Commerce and Labor. If President Taft's policy can be carried out and if the health service can be placed on a basis of uniformity of organization with other services of the government, we may confidently look forward to its speedy development in prestige, power and usefulness.

## THE VIABILITY OF THE TUBERCLE BACILLUS

There has been a good deal of discussion and considerable diversity of opinion as to the length of time the tubercle bacillus may survive extrusion from the animal body. The matter is of no little importance, as on a decision of the question must depend the application of certain measures of prevention. At first it was believed that the tubercle bacillus contained spores and that it was correspondingly resistant to various destructive influences. It was eventually found, however, that the apparent spores were due to beading of the organism in consequence of changes in the protective waxy covering by which its body is surrounded. Recent investigation, moreover, seems to show that the tubercle bacillus has no greater resistance to such agencies as heat, drying, chemicals, sunlight, than most other non-spore-bearing bacteria. Rosenau[1] has shown that exposure to a temperature of sixty degrees Centigrade for twenty minutes is sufficient to destroy tubercle bacilli in milk, bouillon, water and other fluids. In sputum, in dust, in water and on fabrics, on the other hand, the organism may survive for months, although probably the larger number soon die. In pure culture, however, the tubercle bacillus lives for only a comparatively short time, even under the most favorable conditions; and it is generally agreed that the organism succumbs within a few hours to the action of direct sunlight.

As a result of his own observations and of a comparison of his work with that of others Rosenau[2] arrives at the conclusion that there is no easy method of determining the death of the tubercle bacillus. The virulence of the micro-organism vanishes before death takes place. The latter can be determined only by animal experimentation. Dead tubercle bacilli cause lesions indistinguishable from those due to living bacilli, and many erroneous conclusions have been reached from lack of appreciation of this fact.

## THE RED CROSS CHRISTMAS STAMP

The sale of Red Cross Christmas stamps, which was so successful last year and is being repeated this year, has several admirable features. Of course, the humanitarian purpose of the enterprise—the raising of funds with which to carry on the campaign against tuberculosis—cannot fail to receive the hearty approval of physicians and laymen alike. These stamps, moreover, which invite the pennies of children and the nickels and dimes of persons with limited means, must create an interest

1. Rosenau: Bull. 42, Hyg. Lab., U. S. P. H. and M.-H. S., 1908.
2. Rosenau: Bull. 57, Hyg. Lab., U. S. P. H. and M.-H. S., 1909.

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in the work which only a sense of cooperation can give. No imposing subscription list, headed by the names of millionaires, could enlist the active sympathy of the people as can this opportunity for the youngest and the poorest to make their modest offering, secure that it will not be despised. The wide-spread use of the attractive little stamp[1] with its Christmas message must in itself be an educating influence in the antituberculosis crusade. The work deserves the cordial support of all, and physicians especially must desire its success.

## Medical News

### ARKANSAS

**New Board of Health.**—Drs. Edward P. McGehee, Lake Village, J. T. Blanks, Dermott, and James W. Nicholls, Readland, have been appointed members of the board of health of Chicot county.

**Damage Suit Dismissed.**—The suit of Dr. Thomas B. Rider, Hot Springs, for $20,000 damages against Dr. Gilbert C. Greenway and other physicians prominent in the Visitors' Protective League, is said to have been decided against the plaintiff, November 20.

**Sanatorium to be Built.**—The Arkansas Tuberculosis Commission has made arrangements to proceed with the erection of a state tuberculosis sanatorium, which is to cost $50,000. The site, which was donated to the board, is three miles from Booneville and contains a thousand acres.

**Elections.**—The Third District Medical Society held its annual meeting in Lonoke recently and elected Dr. Henry Rightor, Helena, president; Dr. Thomas J. Stout, Brinkley, secretary, and Dr. Eugene A. Callahan, Carlisle, treasurer.——The physicians of Polk county met at Russellville, November 4, and organized the Polk County Medical Association, electing Dr. Robert M. Drummond, Russellville, president, and Dr. Roy W. Darr, Atkins, secretary-treasurer.

### ALABAMA

**Asks Physician to Collect Data.**—Dr. W. H. Sanders, Montgomery, state health officer, has issued a circular letter to the physicians of the state, urging them to do their full duty in the collection of data of diseases and reports of same. He lays especial stress on the prevalence of pellagra and asks that careful statistics be collected.

**New Society Formed.**—The Birmingham Surgical and Gynecological Society has been organized with thirteen charter members, and has elected the following officers: President, Dr. Benjamin G. Copeland; vice-president, Dr. Gaston Torrance; secretary-treasurer, Dr. Edward P. Solomon, and executive council, Drs. John D. S. Davis, William M. Jordan, and Lewis C. Morris.

**Mobile Physicians Protest.**—Fifty physicians of Mobile city and county have signed a petition protesting against the unwarranted restrictions imposed by the prohibition laws of the state and further protesting against such restrictions by the passing of the proposed constitutional amendment. The law referred to prohibits the sale of alcoholic spirits on physician's prescription or otherwise. All hospitals and infirmaries are prohibited from using alcoholic stimulants.

### CALIFORNIA

**Gives Ambulance to Hospital.**—A Studebaker hospital ambulance, fully equipped, has been presented to the San Mateo Red Cross Hospital by Mrs. M. J. O'Connor.

**Warning.**—The readers of THE JOURNAL are warned against a person calling himself "Dr. A. Cato," and pretending to sell goods from the Victor Electric Co., of Chicago, on commission. His method of procedure is said to be to sell a bill of goods, get part payment in cash, and then not to deliver the goods.

**September Births and Deaths.**—During September, there were reported 2,710 births, equivalent to an annual birth rate of 16.2 per cent. per 1,000. During the month 2,353 deaths were reported, equivalent to an annual death rate of 14 per 1,000. Of these 370, or 15.7 per cent., were due to diseases of the circulatory system and 327, or 13.9 per cent., to tuberculosis of various forms.

1. Described in THE JOURNAL A. M. A., Oct. 30, 1909, liii, 1495.

**Sanatoria.**—The managers of the Colfax School for Tuberculosis have enlarged their facilities by the purchase of the Tokayano Ranch of sixty-five acres near the town and will proceed at once to erect twenty cottages, and more as required. Dr. Robert A. Peers is medical superintendent of the institution.——Dr. George H. Juilly, San Francisco, is equipping a building in San Mateo for a sanitarium.

**Tropical Diseases and Parasitology.**—A course of lectures in tropical medicine and medical parasitology will be given in the Oakland College of Medicine, beginning January 3, and lasting for twelve weeks, under the direction of Dr. Creighton Wellman. Two lectures and laboratory demonstrations will be given each week, and interesting tropical cases at the school and various hospitals will be exhibited and studied.

**Physicians Injured.**—Dr. M. S. da Silva, Sacramento, was seriously injured November 18, when a street car crushed his buggy against a pile of lumber, throwing him out and causing severe contusions.——Dr. Charles S. Taylor, Los Angeles, was seriously injured in San Francisco, October 23. He was standing on a street car when a buggy collided with the car and one of the shafts was forced into the doctor's right thigh for three inches.

**Personal.**—Dr. Raymond Russ, Sacramento, has been appointed medical inspector of the state board of health.——Dr. Wallace I. Terry, San Francisco, retiring chief surgeon of the Emergency Hospital, was given a banquet by the assistant surgeons of the staff, October 29, over which Dr. Charles B. Pinkham, the new chief surgeon, presided as toastmaster.——Dr. Stewart McL. Doherty, first assistant physician at the Napa State Hospital, is said to have been dismissed by the board of managers, November 18.——Dr. Robert A. Peers, Colfax, has retired from general practice and will devote himself entirely to the care of tuberculosis. Dr. Henry T. Rooney, San Francisco, will take charge of the general work at Colfax.——Dr. John U. Force has been appointed health officer at Berkeley, vice Dr. Julian J. Benton.——Dr. Martin H. Fischer, professor of pathology in the Oakland College of Medicine, has been awarded the Nathan Lewis Hatfield prize of $500 for original research work in medicine.——Dr. Lionel S. Schmitt, San Francisco, has resigned from the U. S. P. H. and M.-H. Service, and will resume private practice. The attaches of the health department, on October 30, presented Dr. Schmitt with a silver and bronze desk set.

**Hospital Interests.**—The cornerstone of the new San Francisco County Hospital was laid November 20, under the auspices of the board of health, Dr. William Ophuls, president of the board of health, acting as chairman. The buildings are to cost $2,000,000, and will include a general hospital, an isolation hospital, a tuberculosis hospital, and all necessary buildings for power plant, laundry, morgue, ambulance sheds, and stables.——Plans for a new three-story fireproof hospital for Alameda county have been formulated by a committee consisting of Drs. Daniel Crosby, Fruitvale; Oliver D. Hamlin, Oakland; and William A. Clark, San Leandro.——The old wing of the recently rebuilt St. Luke's Hospital, San Francisco, was destroyed by fire November 18. Twenty patients were removed from the hospital without casualty. Plans have been prepared by the directors of the hospital for the restoration of the institution to its original scope and efficiency.——San Jose is soon to have two new hospitals. A contract has been awarded for the erection of the Contagious Disease Hospital, near the O'Connor Hospital, to cost $9,000, and the Bird Haven Company has let the contract for the erection of a sanitarium for nervous diseases, to cost $5,000.——The Northern California Hospital, Eureka, has recently been completed at an expense of more than $80,000, and is now open and in charge of Drs. Charles C. and Curtis O. Falk.——The contract for the erection of the new St. Francis Hospital, San Francisco, has been awarded for $154,500 for the structural work alone. The new building will cover a space 103x137½ feet, is to be five stories and basement in height, and of steel and reenforced concrete construction.——Fabiola Hospital, Oakland, was benefited to the extent of more than $3,000 by the benefit performance November 2.——The Peninsula Hospital, Palo Alto, will be opened this month. The exterior of the building is completed and as soon as the equipment is received, the institution will be ready to open.

### COLORADO

**Library Transferred.**—The medical library of the Denver Academy of Medicine has been transferred to the Medical Society of the City and County of Denver.

**Personal.**—Dr. Albert L. Bennett, Denver, has been appointed local consul for Japan.——Dr. Henry S. Denison, Denver, has been appointed editor of *Colorado Medicine*.——Dr. Donald

Gregg, Colorado Springs, has been appointed resident physician of the new government hospital, Manila, P. I.——Dr. George W. Morse, first assistant physician of the Modern Woodmen Sanatorium, Colorado Springs, has resigned and will return to Denver.

**The Tuberculosis Fight.**—A society woman of Colorado Springs has placed $10,000 in trust, the income of which is to be used in caring for poor patients suffering from tuberculosis. Dr. Charles F. Gardiner has been made almoner of the fund. A second fund of $10,000 has also been placed in trust for the benefit of destitute sufferers from tuberculosis.—— About $3,000 of the $10,000 required to build the Associated Charities Sanatorium in Colorado Springs has been pledged.

## CONNECTICUT

**Sanatorium Site Purchased.**—At a meeting of the State Tuberculosis Commission, November 23, a tract of about thirty acres of land on Cedar Mountain, near Hartford, was decided on for the Hartford county sanatorium.

**Physicians Offer Services.**—The physicians of Manchester have signed an agreement providing for free service to dependent poor of the town, "when deemed proper," and approving of the appointment of a town physician.

**Epileptic Colony.**—At the last session of the legislature, a bill was passed providing for the establishment of a colony for epileptics, for an appropriation of $25,000 for the purchase of a site, and for the appointment of a commission to select and purchase such site. Drs. William L. Higgins, South Coventry, and Max Mailhouse, New Haven, have been appointed by the governor a committee.

**Mental Hygienists Meet.**—At the second annual meeting of the Connecticut Society for Mental Hygiene, held in New Haven, November 12, Drs. Seldon B. Overlock, Pomfret, and Frederick T. Simpson, Hartford, were reelected to fill vacancies in the board of directors, and W. Perry Curtiss was elected to fill the vacancy caused by the resignation of Dr. Elizabeth C. Spencer, Waterbury.

**Monument to Inebriety-Cure Pioneer.**—A monument was unveiled in the Wilton Cemetery, October 27, to Dr. J. Edward Turner, the first to urge the practical fact that inebriety is a disease, and who founded and built the first institution for the treatment of this disease. Dr. Lewis D. Mason, Brooklyn, N. Y., president of the American Society for the Study of Alcohol and Narcotics, delivered the dedicatory address, and the memorial address was made by Dr. Thomas D. Crothers, Hartford.

**Dispensary Election.**—At the annual meeting of the board of managers of the New Haven Dispensary Association, November 10, the following officers were elected: Dr. Arthur N. Alling, secretary; medical staff; surgery, Dr. Joseph M. Flint; medicine, Drs. George Blumer and Oliver T. Osborne; gynecology, Dr. Otto G. Ramsay; ophthalmology, Dr. Arthur N. Alling; neurology, Dr. Max Mailhouse; pediatrics, Dr. Harry M. Steele; dermatology, Dr. Ralph A. McDonnell; orthopedics, Dr. Frederick N. Sperry; and laryngology, Dr. Ernest H. Arnold.

## ILLINOIS

**Spitting Ordinance in Effect.**—The municipal ordinance against spitting came into effect in Kankakee, November 26. By its provisions, a fine of $3 and costs is provided for the first offense, and a maximum fine of $23.25.

**Tent Colony Disbanded.**—The Tuberculosis Tent Colony at Peoria Heights has been disbanded and the patients have been discharged and have gone to their respective homes. During its existence the colony has had eight patients, all of whom showed marked improvement. It is proposed to reestablish the colony next year on a larger scale with accommodation for twenty or more patients.

**Hospital News.**—The campaign in Monmouth for a new hospital was inaugurated November 29. It is expected that $30,000 will be raised for the erection of the new building, and half of that amount has already been secured.——The people of Rochelle have subscribed $22,000 of the $35,000 required to make effective the offer from Emmanuel Hilb, the $15,000 for the establishment of a public hospital in Rochelle.

**Retiring Railway Surgeon Honored.**—Dr. Charles B. Fry, Mattoon, for many years local surgeon of the Illinois Central and Big Four railroads, who is soon to retire from practice and leave the city, was the guest of honor at a meeting of the railway employees of the city, held November 30. The superintendent of the St. Louis division of the Big Four presented Dr. Fry, on behalf of the employees, with a hardsome traveling bag.

## Chicago

**Tuberculosis Clinic Changes Habitat.**—The clinic of the Chicago Tuberculosis Institute, now held twice a week at the Northwestern University Medical School, was transferred December 6 to the Post-Graduate Hospital, Dearborn and Twenty-fourth streets. The clinic days and hours will remain the same, Mondays and Thursdays, from 10 a. m. to noon.

**The Old, Old Story.**—On information sworn to by three physicians, S. W. Jacobs and Harvey M. Brown, officials of the National Aid Society, were arrested November 30, charged with a new insurance confidence game. It is claimed that the complainants were induced to buy stock in the society on the representation that they would receive stock dividends, and furthermore that they were to be called when any of the subscribers were taken ill, and were to be paid liberally for these services.

## INDIANA

**Personal.**—Dr. Paul F. Martin has been appointed a member of the city board of health of Indianapolis, vice Dr. Frank M. Morrison, elected a member of the board of school commissioners.——Dr. Franklin P. Gillaspy, Indianapolis, received painful injuries by being struck by a street car, November 6.

**Medical Society Meeting.**—At the annual meeting of the Thirteenth District Medical Society, held in Warsaw, Dr. Charles J. Loring, Rochester, was elected president; Dr. Lorenzo D. Eley, Plymouth, vice-president, and Dr. C. Norman Howard, Warsaw, secretary-treasurer. The next meeting will be held in Goshen.——Fort Wayne Academy of Medicine, at its annual meeting, elected Dr. Harold K. Mouser, president; Dr. Cecil C. Kimmel, vice-president; Dr. Willis W. Carey, secretary, and Dr. Charles G. Beall, treasurer.

## IOWA

**Hospital News.**—A new wing to cost $10,000, is to be added to the Graham Hospital, Keokuk. It will contain fourteen rooms for patients, a large kitchen, dining-room, diet kitchen, and operating-rooms.——The Sisters of Mercy have assumed charge of the Centerville Hospital.

**Personal.**—Dr. Elijah W. Jay, Marshalltown, was operated on for the removal of gall-stones at Augustana Hospital, Chicago, November 23.——Dr. William W. Pearson was installed as dean of Drake College of Medicine, Des Moines, November 23.——Dr. Charles F. Dietz, Tabor, is reported to be seriously ill with neuritis.——Dr. Lacy K. Bobo, Oxford Junction, has been made president of the Iowa Sanatorium, Maquoketa.—— Dr. John W. Smith, Burlington, sustained painful injuries in a runaway accident, November 10.——Dr. Elbert W. Clark, Grinnell, state senator, is reported to be seriously ill at his home.

**District Societies Meet.**—At the annual session of the Southeastern Iowa Medical Society, held in Mount Pleasant, November 20, it was decided to hold the next meeting at Fort Madison. The following officers were elected: Dr. Charles S. James, Centerville, president; Drs. William S. Lessenger, Mount Pleasant, and Alfred O. Williams, Ottumwa, vice-presidents; and Dr. E. Francis LaForce, Burlington, secretary-treasurer.——At the fifth annual session of the Second District Medical Society, held in Davenport, November 16, the following officers were elected: President, Dr. Lawrence W. Littig, Iowa City; vice-presidents, Drs. Elbridge H. King, Muscatine, and Gordon F. Harkness, Davenport; and secretary-treasurer, Dr. John V. Littig, Davenport (reelected). The 1910 meeting is to be held in Davenport.——Des Moines County Medical Society, at its annual meeting, held in Burlington, November 10, elected Dr. Charles P. Frantz, president; Dr. Fred E. Koch, vice-president; and Dr. Julia M. Donahue, secretary, all of Burlington.

## KENTUCKY

**Personal.**—Dr. Henry Enos Tuley, Louisville, has been appointed by the governor a delegate to represent the state at the National Rivers and Harbors Congress, held in Washington, December 8-10. He has also been elected director of the Louisville Commercial Club.

**Elections.**—The Louisville Clinical Society held its annual meeting, November 23, and elected Dr. Joseph W. Irwin, president; Dr. William A. Jenkins, vice-president; Dr. Henry J. Farbach, secretary; and Dr. Argus D. Willmoth, treasurer.—— Todd County Medical Society, at its annual meeting, held in Elkton, elected the following officers: Dr. John R. Crittenden, Gordonsville, president; Drs. Charles M. Gower, Trenton, and Walter E. Bartlett, Kirkmansville, vice-presidents; Dr. Lee P. Trabue, Elkton, secretary; and Dr. Robert L. Boyd, Pembroke, censor.

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## MARYLAND

### Baltimore

**Personal.**—Dr. Paul W. Harrison has been appointed medical missionary to Africa by the Dutch Reformed Church.——Dr. James H. Stauffer is reported to be ill in Johns Hopkins Hospital.

**Sanatorium Opened.**—The Berliner Memorial Infirmary was formally opened November 22. Gen. George M. Sternberg, Surgeon-General U. S. Army, retired, Washington, received the building for the directors, and Emile Berliner, donor of the sanatorium, which is a memorial to his father, made an address.

**Care of Insane.**—A meeting was held December 9 in the hall of the Medical and Chirurgical Faculty to forward the movement for the study and care of insane and for provision of more hospitals. Addresses were made by Dr. William F. Drewry, Central State Hospital for the Insane, Petersburg, Va.; Attorney General Isaac L. Strauss, Dr. Thomas A. Ashby, Baltimore, member of the legislature; and Dr. DeWitt C. R. Miller, Cearfoss District, state senator. The State Lunacy Commission has drafted a bill for presentation to the next legislature, which calls for the formation of a permanent board of insanity, composed of five members and the attorney general, the members serving without pay. The board is to have power to remove persons from almshouses to asylums. The executive of the board is to visit all institutions at least once every six months. The state is to be divided into hospital districts, and jurisdiction is provided by boards of visitors for each county, and annual reports from heads of institutions. The cost and maintenance of white patients is fixed at $200 per annum, and that of colored patients at $150 per annum, of which the state is to pay one-half. The board is to receive $5,000 a year for expenses, out of which a salaried executive is to be paid. License is to be required from all asylums and retreats. In addition to the two present state hospitals, an additional one is to be provided for white persons on the eastern shore and one for colored persons in southern Maryland.

## MICHIGAN

**Personal.**—Dr. Eugene Smith, Detroit, has returned from Europe.——Dr. George R. Pray, Jackson, has been elected supreme archon of the Phi Beta Pi Medical Fraternity.

**Society Meeting.**—At the annual meeting of the Genesee County Medical Society, held in Flint, October 26, Dr. Noah Bates, Flint, was elected president; Dr. James W. Parker, Grand Blanc, vice-president; Dr. Myron W. Clift, Flint, secretary-treasurer; Dr. Amos S. Wheelock, Goodrich, member of the board of directors, and delegate to the state medical society, and Dr. Herbert E. Randall, Flint, alternate.

**Tuberculosis Records.**—Under the new state tuberculosis law, record books are provided, giving case reports of tuberculosis, including the name and address of each patient, age, nativity, sex, occupation, color, place where last employed, evidence on which diagnosis of tuberculosis is made, part of body affected, stage of disease, and name and address of person furnishing facts. These registers are open to inspection only by the health authorities, and it is not permitted that any such reports or records shall be divulged so as to disclose the identity of the persons to whom they relate.

**Tuberculosis Notes.**—The Detroit Society for the Study and Prevention of Tuberculosis has concurred in the report of the sanatorium committee, recommending the acceptance of a ten-acre site at Twelfth and Hamilton boulevard. The institution will be known as the Detroit Tuberculosis Sanatorium. Articles of incorporation were drawn up November 16. Dr. Burt R. Shurly has been elected president, and Dr. Herbert M. Rich, a member of the executive committee.——The new shack at the Antituberculosis Camp, east of Kalamazoo, is ready for occupancy. The building is 25x25 feet and occupies the space between two other shacks. The institution now has three large and five small shacks in use.

## NEW JERSEY

**Fire in Epileptic Village.**—Three of the five new barns on the grounds of the State Village for Epileptics, near Pennington, were destroyed by fire, November 9, causing a loss of about $20,000.

**Oppose Preventorium.**—The protest of certain residents of Lakewood against the Tuberculosis Preventorium for Children in that place has received the support of the governor, who states that the establishment of an institution of that character can be done only under state authority, and refers the matter to the Commissioner of Charities and Corrections for action.

**Personal.**—Dr. Hyman I. Goldstein, Camden, has been elected assistant laryngologist and assistant in the nose, throat and ear and medical departments of the Lebanon Hospital, Philadelphia.——Dr. William James, German Valley, was seriously burned while attempting to save his horses from a burning stable.——Drs. George C. Becket, Winifred D. Banks, and Palmer A. Potter have been appointed medical inspectors by the East Orange Board of Education.——Dr. Luther M. Halsey, Williamstown, has been appointed medical inspector of schools of Monroe township.——Dr. Horace G. Norton, Trenton, has been elected secretary of the State Board of Medical Examiners, vice Dr. Edmund L. B. Godfrey, Camden, resigned.

## NEW YORK

**Antituberculosis Society.**—The Syracuse branch of the New York Association for the Prevention and Cure of Tuberculosis was organized November 26. Dr. David M. Totman presided and was afterward elected one of the vice-presidents of the association.

**Personal.**—Dr. George S. Lape has been elected jail physician of Binghamton.——Dr. Vernon L. Bishop, Hemlock, has been appointed physician at the Matteawan State Hospital.——Dr. J. Reid Davidson, South Bethlehem, has retired after thirty years of practice.

**Lockport Physicians Organize.**—The physicians of Lockport have organized a local society, known as the Lockport Academy of Medicine, have adopted a constitution and by-laws, and elected the following officers: President, Dr. Charles N. Palmer; vice-president, Dr. Flavius J. Baker; secretary, Dr. Charles L. Preisch; treasurer, Dr. Henry H. Mayne; councilors, Drs. Allan N. Moore, S. Wright Hurd, and Alexander McNamara; and trustees, Drs. Ferdinand A. Kittinger, Willis P. Weaver and Warren H. Loomis.

**Sanatorium and Hospital Plans Approved.**—The State Board of Charities, at a meeting November 7, approved the certificate of incorporation of the Newburgh Sanatorium, to be established by ex-Gov. B. B. Odell, Jr., at a cost of $75,000. The board also approved the proposed consolidation of the New York Infant Asylum and Child's Nursery and Hospital, to be known as the New York Infant Hospital and Child's Nursery, with joint resources of about $1,000,000, and the incorporation of the Southampton Hospital Association, which proposes to establish a general hospital at Southampton, Long Island.

### New York City

**Harvey Lecture.**—The third lecture of the Harvey Society, delivered by Prof. T. G. Brodie, of the University of Toronto, December 11, at 8:30 p. m., at the Academy of Medicine, 17 West Forty-third street, is on "Renal Activity."

**Honor Retiring Intern.**—Dr. Walter E. Hurley, whose term of service as house surgeon in the Williamsburg Hospital expired December 1, was given a farewell dinner, November 29, by professional and other friends, at which a colonial clock was presented to Dr. Hurley.

**Andrew McCosh Memorial.**—The Andrew J. McCosh Memorial Committee has announced that $116,000 have been received. The committee has not decided definitely on the memorial, but the fund probably will be used in the erection of an operating pavilion for the new Presbyterian Hospital.

**For City Hospitals.**—At the last meeting of the board of estimate the largest appropriation made was for the charities department, $2,237,000, which is to be used in improving the hospital facilities on Randall's and Blackwell's islands, and for improvements in connection with the Kings County and Cumberland Street hospitals.

**Appropriation for Sanatorium.**—The proposed tuberculosis sanatorium for the city at Staten Island took tangible form November 23, when the Board of Aldermen passed a resolution appropriating $1,300,000 in corporate stock for the building. The board also ratified the issuance of $54,000 corporate stock for the Coney Island Hospital, and $77,000 for the Bradford Street Hospital, Brooklyn.

**Clinical Society Organized.**—The Clinical Society of the West Side German Dispensary and Hospital was organized November 24. Its membership is composed of members of the staff and faculty of the New York Clinical School of Medicine. The following officers were elected: Dr. Robert N. Disbrow, president; Dr. Leon F. Garrigues, vice-president, and Dr. D. Livingston Morrison, secretary. The society will meet at the hospital on the first Tuesday of each month.

**Large Sums for Charity.**—The will of Edward O. Kindberg, recently admitted to probate, leaves the residue of his estate, worth about $100,000, to the Presbyterian Hospital.——The

death of John Masterson Burke now makes available $4,000,000 for the building of a convalescent home. In 1902 Mr. Burke conveyed to a corporation which he named the Winifred Masterson Burke Relief Foundation, property to the value of $4,000,000, the income of which was spent in caring for worthy sick during his lifetime, but now the entire sum is at the disposal of the corporation.——The will of Herman Jacoby leaves $1,000 each to the Lebanon and Beth Israel hospitals.

**Academy Needs Increased Facilities.**—Because of the increase in membership of the New York Academy of Medicine, and the lack of space for the rapidly increasing library, it was proposed at a meeting of the directors, December 2, to submit to the members a proposition for the erection of a new building to cost about $700,000. The proposed improvements include an increase in the library space of from 90,000 to 225,000 volumes, and the enlargement of the present building by the purchase of the adjoining lot on the east. The president appointed the following committee to submit a report December 16, and suggest a site for the new building: Drs. Edward G. Janeway, Joseph D. Bryant, Abraham Jacobi, Algernon T. Bristow, Simon Flexner, Joseph A. Blake, Reginald H. Sayre, A. Alexander Smith, Charles L. Dana, Arthur M. Jacobus, W. Gilman Thompson, William C. Lusk, L. Emmett Holt, Herman L. Collyer, Henry S. Oppenheimer, Haven Emerson and Charles N. B. Camac.

## NORTH CAROLINA

**Personal.**—After twenty years' service as surgeon general in the state, Col. Robert S. Young, Concord, has retired with the rank of brigadier general, and has been succeeded by Lieut.-Col. S. Westray Battle, Asheville, deputy surgeon general.——Dr. Francis J. Clemenger, Asheville, has returned from Europe.

**The Tuberculosis Conflict.**—At a meeting in Salisbury, November 20, the Rowan County Antituberculosis Association was organized. Dr. William W. McKenzie presided over the meeting, Dr. John Whitehead was elected president, and Dr. McKenzie, secretary.——Cumberland County Antituberculosis Society was organized at Fayetteville, November 13, with the following physicians as officers: Dr. Jacob F. Highsmith, Fayetteville, secretary-treasurer; and Dr. Kirby G. Averitt, Cedar Creek, second vice-president.——The North Carolina Association for the Prevention of Tuberculosis will hold its annual meeting in Greensboro, Jan. 25, 1910, under the presidency of W. L. Dunn. Dr. Livingston Farrand, New York, executive secretary of the national association, will deliver a popular address, and a tuberculosis exhibit will be held.——Dr. Charles A. Julian, secretary of the State Association for the Prevention of Tuberculosis, is holding special meetings and organizing local antituberculosis societies. He has requested all ministers to designate a day on which special sermons will be preached along sanitary lines. The governor commends the idea to the clergy. A Sunday in March is to be selected as Sanitary Sunday.

## OHIO

**Medical Teachers to Meet.**—The Ohio Association of Medical Teachers will meet at the Southern Hotel, Columbus, December 27, afternoon and evening. Dr. James U. Barnhill is president and Dr. E. I. McKesson, secretary.

**Personal.**—While hunting near Marysville, November 23, Dr. Lutrelle M. Henderson was accidentally shot, but was not seriously wounded.——The board of trustees of the Toledo State Hospital has elected Dr. William H. Beggs, Columbus Grove, president, and Dr. George R. Love, Toledo, secretary.——Drs. Kinson S. West and Adams B. Howard, Cleveland, have started for Great Britain.

### Cincinnati

**Medical Research Society Election.**—At the annual election of the Cincinnati Society for Medical Research, the following officers were elected: President, Dr. Paul Wooley; vice-president, Dr. William Wherry; secretary-treasurer, Dr. Jacob L. Tuechter, and executive committee, Drs. Sidney Lange and Joseph Ransohoff.

**Celebrate College Union.**—The union of the Ohio and Miami Medical Colleges was celebrated by the University of Cincinnati, December 1, at McMicken Hall. The chief address of the evening was delivered by Dr. Victor C. Vaughan, dean of the College of Medicine of the University of Michigan. A reception for the officers and guests of the University followed.

**Personal.**—Dr. Louis Schwab, mayor-elect, has resigned as medical director of the Cincinnati Hospital, and Dr. Byron Stanton, president of the State Board of Health, has been elected in his stead. Dr. Schwab was guest of honor at a banquet tendered by brother practitioners, November 24. Dr. Charles L. Bonifield acted as toastmaster and Dr. Schwab, in his response, spoke of the urgent need of an improvement in the sewage of the city.——Dr. Miriam Schaar, chief of the Bureau of School Hygiene, has resigned to take effect January 1.

## PENNSYLVANIA

### Philadelphia

**Addition to the Mutter Museum.**—A collection of vesical calculi and surgical instruments, formerly belonging to Dr. John B. Mettauer, Richmond, Va., were presented to the Mutter Museum of the College of Physicians by Dr. George Ben Johnston, Richmond.

**Mutter Lecture.**—The Mutter Lecture for 1909 will be delivered in the Cadwalader Room of the College of Physicians, December 10, by Dr. Henry D. Fry, Washington, D. C., professor of obstetrics in Georgetown University. His subject will be "The Nutritional Changes Occurring in the Fibromyomata of the Uterus Incident to Pregnancy and Puerperium."

**Heavy Tuberculosis Mortality.**—The large weekly mortality rate from tuberculosis has made it necessary for Dr. Joseph Neff, Director of Public Health and Charities, to ask Councils for appropriations to establish day camps for tubercular patients and for other preventatives and curatives. Of the total of 426 deaths reported last week, 117 were caused by tuberculosis.

**New Hospital Plan.**—A plan to affiliate the Philadelphia Polyclinic and College for Graduates in Medicine, known as the Polyclinic Hospital, with some other institution, was proposed at the last meeting of the directors. If carried out the institution will in the future be only a hospital and the college for graduates in medicine be dropped. The college and hospital were founded in 1883 and constitute the only institution of the kind in the state.

**New Cars Decrease Accidents.**—Figures have been compiled showing a year's operation of the Rapid Transit Company's pay-within cars, having the closed doors and steps. During the month of October on one line alone there was a decrease in accidents of 74 per cent. In the five heaviest months of the year, April, May, June, July and August, accidents on the Fifty-second street division decreased 79 per cent. compared with the same period of last year when no pay-within cars were used. The number of passengers on this line increased 11.2 to 12.5 per car mile. The greatest number of injuries have been caused by boarding and alighting from cars, a class of accidents entirely avoided by the pay-within car.

**Old Hospital Corner-Stone Removed.**—The corner-stone of the recently demolished executive building of the Municipal Hospital at Twenty-second and Lehigh avenues was taken from the old grounds, which are being converted into a public park, on December 3, and sent to the bureau of city property in City Hall. It was found to contain the daily papers of Feb. 1, 1864, together with a list of the members of Councils of that year and the names of city officials and the special commission, of which Dr. John B. Biddle was president, appointed for the purpose of obtaining a site and erecting a building for municipal hospital purposes. The ordinance was dated Nov. 24, 1862, and provided that the site should not exceed $10,000 in cost, and the cost of buildings was limited to $30,000. The site is now valued at $200,000.

## GENERAL NEWS AND COMMENT

**Colorado Medicine.**—No reform is accomplished without self-sacrifice and often those who are most ready to assume the burdens are those who would seem least fitted to bear them. The Colorado State Medical Society is not the largest, strongest, or wealthiest of the state associations. Its members number only 778, and the publication of a journal of any kind by this society speaks well for the energy and devotion of its members. When, however, it publishes a periodical which, in the cleanness of its advertising pages as well as the scientific and practical character of its reading matter, can compare favorably with the publications of much larger associations, it is entitled to all the more credit. *Colorado Medicine*, the monthly published by the Colorado State Medical Society, is only in its sixth year, yet from the beginning it has kept a high standard for its advertising pages and has placed the good of its membership above its advertising receipts. The Colorado profession is to be congratulated on having had the right man to manage its official paper.

**Chiari to Give Herter Lectures.**—The next course of lectures on the Herter Foundation in Johns Hopkins Medical School, Baltimore, will be given Oct. 5, 6 and 7, 1910, by Dr. Hans

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Chiari, professor of pathologic anatomy in the University of Strassburg. His subjects will be: (1) "Significance of the Amnion in the Origin of Human Monstrosities;" (2) "Necrosis of the Pancreas;" and (3) "Spondylolisthesis."

**Mexican Association to Meet.**—The International Medical Association of Mexico announces that its next meeting will be held at Aguascalientes, January 25-27. The officers of the association are Dr. S. H. Hodson, Tampico, president; Drs. C. L. Bennett, Aguascalientes, and J. McPherson, Salina Cruz, Oaxaca, vice-presidents; Dr. J. S. Steele, Monterey, N. L. secretary-treasurer; Drs. Carlos E. Husk, Santa Barbara, Chihuahua, C. E. Cramb, Mapimi, Durango, and R. H. L. Bibb, Saltillo, Coahuila, censors; and Drs. R. D. Robinson and W. R. Jamieson, Torreon, Coahuila, editors of the *Annual*. The work of the association is divided into three sections: first, "original articles;" second, "rehashes;" and third, "emergencies and mistakes."

## FOREIGN

**Association of Italian Medical Press.**—The representatives of the various scientific journals published in Italy met at Genoa, October 24, to organize the Association of the Scientific Press with departments for the various sciences. The medical department has taken for its tasks a campaign against the pseudoscientific medical journals representing commercial interests, and the defense of the Italian language in international congresses.

**Death of Duke Karl Theodor, the Royal Ophthalmologist.**—Duke Karl Theodor of Bavaria, the well-known ophthalmologist, succumbed to kidney trouble on November 30, at Bayreuth in Bavaria. He was the head of the ducal line of the Bavarian house, and one of his sisters was the empress of Austria, assassinated a few years ago at Geneva; the other sister, the duchesse d'Alençon, lost her life in the Paris charity bazaar fire. One of his daughters is the wife of the crown prince of Belgium, and the other the wife of the heir to the throne of Bavaria. Duke Karl has published a number of good works on ophthalmologic subjects, and had an extensive practice, but charged no fees. He founded and sustained a free eye hospital for his patients. His seventieth birthday was celebrated August 9, on which occasion our Berlin correspondent reviewed his scientific career (page 807).

**Other Deaths in the Profession Abroad.**—A. O. Lindfors, who was professor of obstetrics and gynecology at the University of Upsala, died while on a trip to England, aged 67. He published a number of works on these specialties, both in Scandinavian and German journals, among them his account of the first successful operation for umbilical hernia.——L. Katz, professor of otology at the University of Berlin, and author of microphotographic atlases of the internal ear, etc., died in September, aged 61.——Prof. A. Dohrn, the founder and director of the Zoologic Station at Naples, the cradle of so much important biologic research by investigators of all countries, died at Munich September 26, aged 59. He is said to have been the first to call attention to the transformation of functions of organs.

**Diplobacillus Alleged Causal Germ of Exanthematous Typhus.** The *Centralblatt für Bakteriologie*, Oct. 30, 1909, contains an article by M. Rabinowitsch of Kief, Russia, on the local endemic of exanthematous typhus and announcing that he has been able to isolate from the blood and organs a diplobacillus which shows up with the Giemsa stain and induces in laboratory animals a disease closely resembling typhus in man. He states that poverty and destitution in Russia have reached their highest point in the last three years, and that endemic fevers have kept pace with them. Between 1900 and 1906 there were 1,515 cases of exanthematous typhus at Kief, with 124 deaths; 2,873 of typhoid, with 275 deaths, and 332 of relapsing fever, with 4 deaths. Since the beginning of 1906 to the beginning of 1909 there have been enough more cases to bring the totals for the last eight years to 3,261 cases of exanthematous fever, with 297 deaths; 6,118 of typhoid, with 734 deaths, and 13,574 of relapsing fever, with 397 deaths. Since April, 1908, there were in the local prisons alone 840 men and 27 women affected with exanthematous typhus. He assumes that germs lose or acquire certain properties by passage through the animal organism or by breeding in filth, and that poverty and unhygienic conditions, by reducing the resisting powers, favor endemics in general. In the overcrowded Russian prisons some of the men have to lie on the floor close up to the door near which is installed the historically famous "parascha," the can used by the prisoners for their excreta, and which is emptied only once a day. The political prisoners are kept separate, he says, and only a few among them have contracted typhus. The mortality in the prisons has been 23 per cent., while in the general population it was only 8.1 per cent. The distribution of the three endemic fevers throughout the town seems to show that the means of dissemination are practically the same for all. We fail to recognize the pathogenic germs when encountered outside of the body because they have lost certain properties by which we are accustomed to recognize them; every specific bacillus seems to have a corresponding pseudobacillus, he remarks.

## PARIS LETTER

*(From Our Regular Correspondent)*

PARIS, Nov. 25, 1909.

### The Infectious Nature of Infantile Diarrheas

Some authors have disputed the bacteriologic origin of infantile diarrheas and have attributed it to alimentary intoxication or to external causes, such as excessive variations of temperature. M. Metchnikoff, at the last session of the Academy of Medicine, made an important communication which tends to show the infectious nature of infantile diarrhea. He finds that suckling rabbits often contract a fatal diarrhea after having absorbed a small quantity of the dejections of infants affected with acute gastro-enteritis. A young chimpanzee which had been given a little of the green diarrheic injections of a baby of six months was abruptly seized with a severe diarrhea which lasted four weeks, and a second chimpanzee which was given some of the diarrheic matter of the first chimpanzee also had diarrhea the next day. According to the researches of M. Metchnikoff, the pathogenic microbe of gastro-enteritis is the *Bacillus proteus*. Hence, it becomes difficult to hold cows' milk responsible for infantile diarrhea, since out of every ten samples of cows' milk, only two contain the *Bacillus proteus*. Moreover, many cases of gastro-enteritis are observed in breast-fed children. It seems probable, therefore, that it is not cows' milk, but rather the persons who care for the infants who communicate the infectious agent to them. The *Bacillus proteus* is very abundant in the dejections of animals (the cow, dog, horse); it is probably carried thence by flies to various foodstuffs, such as raw meat, cheese, grapes, salad vegetables, etc., which, eaten without being disinfected, carry the microbe into the alimentary canal. The prolonged contact of infected persons with infants is sufficient to contaminate the latter. To protect infants from gastro-enteritis, therefore, it is not sufficient to sterilize the cows' milk that is fed to them; it is necessary, also, that the hands and the breasts of the women who suckle them should be frequently washed with soap, and that the persons who care for the infants take precautions not to become infected with the *Bacillus proteus*. To this end M. Metchnikoff recommends washing fruits and vegetables, especially salad vegetables, with boiling water, and even singeing cheese crusts.

### Limitation of the Number of Medical Students

At the next Congress of Practitioners, which will be held at Paris at the end of March, 1910, the question of limitation or non-limitation of the number of medical students who enter the schools will be discussed. In order to diminish the oversupply which seems to prevail in the medical profession, some physicians propose to establish competitive entrance examinations for the young people who intend to enter a medical career. As I have had occasion to show in a former letter, however (THE JOURNAL, Aug. 29, 1908, li, 771), the situation from which the medical profession in France suffers depends, not on the overproduction of physicians, but rather on the bad distribution, a greater number of young physicians seeking to settle in Paris and the large cities, where they drag out a miserable existence, when they might earn a livelihood in the country.

### Medical Secrecy with Respect to the Insane

Dr. Pradel has laid before the *Syndicat médical de Paris* a delicate and embarrassing case. A physician had attended a married man who had become insane and had been placed in an institution. The patient had died, leaving a will disinheriting his widow, who, in order that she might contest the will, had asked the physician who attended her husband before he was placed in the institution, for a certificate stating that her husband had had mental trouble at a date anterior to that of the will. The question that Dr. Pradel raised was whether the family physician could give the widow a certificate to that effect. This communication called forth a warm debate and most dissentient opinions. Dr. Chassevant, professor *agrégé* at the Paris medical school, declared that the physician

had not the right to deliver such a certificate, because it would be a violation of professional secrecy. Dr. Dalché, physician of the hospitals of Paris, believed that, whatever grounds there might be for giving such a certificate, the law forbade it. Dr. Biarbeau, on the contrary, believed that when a patient had been examined and declared insane, professional secrecy was no longer due to the patient, while his wife had a certain right to demand a certificate stating that there had been mental trouble dating from a certain time, consequently the physician would not violate professional secrecy by granting it. Dr. Granjux, secretary of the staff of the *Bulletin Médical*, insisted that the first duty of the physician was to protect a patient with mental disease by making his condition known to the person who represented the family and indicating the precautions necessary to take. These precautions in reality constitute measures restrictive of individual liberty, and the guardian who executes them has an indisputable right, in order to justify his responsibility, to exact from the physician a written statement of the necessity of such measures. Even if the patient's guardian does not demand a certificate at the time, he might need and demand it later; and in such cases the physician can do nothing else than to protect the patient's representative from responsibility for the measures that he himself has prescribed.

### The Public First Aid Service

Dr. Thoinot has just given to the Council on Public Hygiene and Salubrity of the department of the Seine a report on the work of the first aid service (*secours publiques*) during the year 1908. The pavilions established in Paris along the banks of the Seine and the canals for first aid to the apparently drowned have received 392 patients (228 men and 164 women), twelve of whom having been too long in the water could not be resuscitated; 165 of these had thrown themselves into the water. The stations established in the suburbs received 15 apparently drowned persons, of whom only one could not be revived. Of sick and wounded persons 260 (238 wounded and 28 sick) were cared for in the various first-aid posts of Paris. Ninety-five persons (88 wounded and 7 sick) were cared for in the suburbs. The special ambulances used at the time of public ceremonies and holidays received 326. The litters of the various stations of the arrondissements have been used 290 times. In short, the first-aid service has given aid during 1908 to 1,378 persons, 407 of whom had been apparently drowned.

### Prizes of the Academy of Sciences

The Academy of Sciences has just awarded the following prizes: the Montyon prize ($150 or 750 francs) was divided between M. Charles Dhéré, professor of physiology at the University of Fribourg, Switzerland, for his "Spectrographic Researches on Absorption of Ultra-Violet Rays by the Albuminoids, the Proteids and Their Derivatives," and M. E. Pozerski, of the Pasteur Institute at Paris, for a work entitled "Contribution to the Study of Papain." The Philipeaux prize ($180 or 900 francs) was given to Dr. J. E. Abelous, professor of physiology at the Toulouse medical school and Dr. E. Barbier, professor *agrégé* at the same school for their works on "The Hypertensive Actions of Urines and Urohypertensin." The Lallemand prize ($360 or 1,800 francs) was divided between M. Auguste Petit (for his work on "The Brains of *Grampus griseus*, *Steno frontatus* and *Globicephalus melas*") and M. Gustave Roussy, of the school of higher studies at the College of France, for his work entitled "The Optic Thalamus, The Thalamic Syndrome." The La Caze prize ($2,000 or 10,000 francs) was given to Dr. Delezenne of the Pasteur Institute at Paris for his collective works. The Barbier prize ($400 or 2,000 francs) was divided between M. L. Launoy (for a series of works on the "Nuclear Phenomena of Secretion," "The Histophysiology of Pancreatic Secretion," "The Autolysis of Organs and Endocellular Ferments," and "The Aseptic Autolysis of the Liver") and M. J. Lesage, now professor of physiology at the institute of agronomy at Buenos Ayres for his memoir: "Experimental Researches on Maté." The Parkin prize ($680 or 3,400 francs) was awarded to M. Adolphe Cartaz for his memoir on "The Employment of Carbon Dioxid in Diseases of the Nose and Throat."

## LONDON LETTER

*(From Our Regular Correspondent)*

LONDON, Nov. 27, 1909.

### The Declining Birth Rate

The president of the Royal Statistical Society, Sir. A. Baines, devoted his inaugural address to "The Recent Growth of Population in Western Europe." The population with which he dealt in 1900 numbered 239,000,000. During the last thirty years the Teutonic element has risen from 53 to 58 per cent. and the Latin has fallen from 44 to 40 per cent. Ireland alone shows an actual decrease of 17 per cent. The general increase is just under 31 per cent., conventionally held to have been normal for the last century. A generation ago the marriage rate was held to be a good barometer of prosperity and wherever there was room for a couple to live up to the conventional standard a marriage took place. But the standard of living and the power of convention over it has risen. On the whole there has been a slight falling off in the marriage rate during the last thirty years, which is especially marked among the already low rates of Scandinavia and in France and Italy. The increased avoidance of matrimony is most marked in the United Kingdom and in North Scandinavia. The mean age of wives has risen considerably in the United Kingdom but the decline of the birth-rate is still greater and cannot be accounted for by this cause. The rate of decline is even greater than in France. Until the present generation the systematic adoption of the limitation of offspring by married persons had been practiced only in the latter country. Now it has permeated this and other countries. As a result we are beginning to have in the green what is so apparent in the dry in France—an increasing preponderance of the population in or past its prime. In spite of the decreasing birth-rate a natural increase of the population continues, because everywhere the death-rate has fallen much faster than the birth-rate. Comparing the different countries the natural increase of population is greatest in Scandinavia, England and Holland occupy a middle position, and France falls behind the rest.

### New Factory Act for India

The introduction of western industrialism into India has rendered necessary the adoption of regulations for labor analogous to those of European countries. The first factory act was passed in 1881. It provided for fencing of machinery, inspection and reporting of accidents, and limited hours of children's labor to nine. Seven was fixed as the lowest age for the employment of children, who remained in that category up to the age of twelve. In 1891 another act was passed raising the lowest age for the employment of children from 7 to 9, and the maximum age when they are considered such to 14. Their hours of labor were reduced to 7, the hours of women were limited to 11. A midday stoppage and a weekly holiday were prescribed for all hands. Except for the weekly holiday no restrictions were placed on the labor of adult males. There was no desire among the male operatives that their hours should be limited by law. Nature however imposed limits—the hours of daylight, which average about 12 throughout the year. But the introduction of the electric light has abolished this restriction. In 1904-05 there was a boom in the cotton industry in Bombay and the hands were overworked, though well paid. Adults, and sometimes children, worked as much as 15 hours daily or more and the conditions were denounced as a scandal and attracted public attention. The government, therefore, instituted an inquiry by a committee containing physicians and health officers, who reported in favor of a twelve-hour day. The committee found that the conditions of work in the textile factories were calculated to cause physical deterioration and it was struck by the absence of elderly men, although the demand for labor was much in excess of the supply. The government has now passed a new act limiting the hours of labor to twelve. Employment of women before 5:30 a. m. or after 7 p. m. is forbidden and, unless an approved shift system is adopted, of adult males also. Regulations are made for ventilation, lighting, water supply, latrines, protection against fire, etc. After six hours work there must be an interval of half an hour. A child must be examined and obtain a certificate before employment in a factory. No child must be employed more than six hours in a textile factory. The most important new departure is the regulation of the hours of adult labor. The Indian laborer prefers to work leisurely for long hours with frequent rests rather than work strenuously for shorter hours.

### The Royal College of Surgeons

The annual meeting of the fellows and members of the Royal College of Surgeons has been held. The president, Mr. Henry Butlin, expressed doubts whether the proposed combination with the University of London for the purpose of rendering a medical degree more accessible to London students (referred to in a previous letter) was possible. Everything should be done to bring about this object by lowering the standard of examination for the benefit of students educated in London, who suffered great disabilities and disadvantages compared with those educated in the provinces and in

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Scotland and Ireland, where a medical degree was obtained more easily. A long discussion took place on the granting of members the right of direct representation on the council (the governing body of the college). At present the council is elected entirely by the fellows, who form a small minority. These holders of the superior qualification are nearly all hospital surgeons and include practically all the names eminent in English surgery. The members number 17,000 and are nearly all general practitioners, the rank and file of the profession. The annual meeting of fellows and members is the only occasion on which the members have any opportunity of expressing their views with regard to the government of the college. For the past twenty-five years they have passed a resolution demanding representation on the council which has never been followed by any action by that body. The members urge that they contribute the largest amount of money (in examination fees) to the upkeep of the college and that their exclusion from representation is not in consonance with modern democratic ideas. However, no allegation has ever been made by them that government of the college is not carried on in the best possible manner and they have never suggested important reforms which should be carried out. Though the government is in the hands of an oligarchy it is an oligarchy of the best possible kind—an aristocracy of brains. The fellowship examination is open to every member and requires only the requisite ability and knowledge. It may therefore be contended that the present government is democratic in the best sense. A resolution was also carried in favor of the promotion of a new charter and act of parliament for the incorporation of the Royal College of Surgeons and Physicians with the University of London with the object of facilitating the obtaining of degrees by London students.

### Radium from Uranium

At the Physical Society of London, Mr. Soddy read a paper on this subject which is of interest in view of the therapeutic uses of radium. Measurements on the growth of radium in three uranium solutions purified between three and four years ago have shown that in all the growth of radium is proceeding at a rate proportional to the square of the time. This result indicates the existence of only one long-lived intermediate product in the series between uranium and radium. The period of the average life of this body, calculated on the assumption that no other intermediate bodies exist, is 18,500 years.

## VIENNA LETTER

*(From Our Regular Correspondent)*

VIENNA, Nov. 24, 1909.

### The New Bill for the Care of the Insane

Our "lunatic act" (*Irrengesetz*), as it is called, is so behind the requirements of modern times that its reform is the first aim of the new chief board of health (*oberste Sanitäts Rat*). A reform of the clause dealing with the voluntary or involuntary admission of a person of unsound mind into a "sanitarium" is most urgently called for. In future the seclusion of a person supposed to be of unsound mind must be reported to the local authorities within twenty-four hours, if it be a member of the family, or within eight days, if it be a stranger. Then the public health officer has to examine the patient and to report to the board of health whether the person must be detained in a lunatic asylum or any other suitable sanitarium or may be left in charge of his friends. If the patient is dangerous to himself, those around him or the public, or he would be apt to suffer from neglect at home, he must be detained in an asylum. If the patient has no friends the local magistrates may at once order the detention, if the case is dangerous. The patient may be detained against his will or the will of his friends under the following conditions: If the officer of health finds it necessary; if a public judge orders it after hearing medical evidence; if the legitimate representative or guardian of a person under age requires it; or if a person traveling on a railroad or other public conveyance is found to be of unsound mind and the health officer considers him a public danger. Any such case must be reported at once to the board of health, for as the first sentence of the new law says, "all persons who on account of a defect of their mental capacities require special care enjoy the protection of public administration." For this purpose a special inspector for the mentally afflicted (*Irreninspector*), with assistants, will be appointed on the board of health. It is therefore intended to institute a psychiatric sanitary board. The official name of an institution for the insane will no longer be "lunatic asylum," but "sanitarium" (*Heil- und Pflegeanstalt*). If a person desires to be detained voluntarily in a mental sanitarium, a request must be signed by the patient himself, and a testimony by a qualified medical man, who is related neither to the patient nor to the owner or director of the sanitarium, must be produced. Such cases also must be reported within twenty-four hours to the inspectorate mentioned above.

### Personal

The newly elected chief board of health, which for the first time since its existence contains also a number of country practitioners, held its first meeting for organization a few days ago, and Prof. Ernst Ludwig, the chief analytical chemist of the University of Vienna, was elected president, and Professor Weichselbaum, the well-known pathologist, vice-president, together with Professor Chrobak. Professor Horbaczewski was elected president of the committee for water-supplies, Mauthner, vice-president. Professor Exner, the celebrated physiologist, was elected president of the committee for health resorts, mineral waters and balneologie matters.

### The Reform of Contract Practice and the Profession

A subcommittee of the Austrian parliament recently discussed the new arrangements suggested in connection with the proposed "social insurance bill." Representatives of medical councils and organizations were admitted to the inquiry. While employers and employees are willing to concede to the profession only that persons earning more than 4,800 crowns ($960) a year should be exempt from the compulsory insurance against sickness, the doctors wish the limit to be 2,400 crowns ($480). It must be kept in mind that in this country income taxes must be paid from an income of 1,200 crowns, or $240, showing that living is cheaper than in America, since this sum is considered enough to live on. More than 73,000 persons in employment, who are not members of a *Krankenkassa* or sick benefit club, earn over 2,400 and less than 4,800 crowns, so that this important class of the population would be lost for the profession as possible patients. This would mean the ruin of the profession. The figures are official. The government plan favors the lower figure as limit for the compulsory insurance. No consensus of opinion being obtained at the inquiry, and the parliament being willing to disregard the interests of the profession, energetic measures are contemplated by the organization of practitioners, a young but active combination of doctors. In fact, if the law should pass the house and not pay due consideration to our profession, a general strike is already spoken of. But it is hoped that such a step will not be necessary.

# *Pharmacology*

## MORE PRESCRIPTION FAKES

### Answers to Correspondents as a Means of Exploiting Nostrums

One of the "features" of the modern metropolitan daily is the "Woman's Page," in which is given, for the education or delectation of feminine readers, reading matter that ranges from the useful to the inane. Naturally enough, we find the important subject of care of the health learnedly (?) discussed by the "Madames" or "Mademoiselles" who have charge of these departments. To the "patent-medicine" advertiser who would deceive the reader by publishing his advertisement in "reading-matter" style, space on these "woman's pages" is a valuable asset. A form of deceptive advertisement that of late has become very popular with nostrum exploiters has previously been referred to in these columns as "prescription fakes." The advertisements are usually set as reading matter and contain information regarding the treatment of some physical ailment by means of the drugs contained in an innocent looking formula; usually all the drugs but one are official, the exception being a "patent medicine" with a name not unlike the pharmacopeial preparations. A modification of the "prescription fake" type of advertisement forms the subject of this article.

#### "HEALTH AND BEAUTY TALKS"

For several months past many newspapers have been carrying on the "woman's page" what, to the uninitiated, appears to be a department devoted to answering queries regarding health. The "department" is entitled "Health and Beauty

Talks," or "Health and Beauty Helps," or "Aids" or "Secrets"—the last word of the title varying with the copy. Under the title is the legend "By Mrs. Mae Martyn." The subject-matter consists of information (?) on questions of health, given in the "answers to correspondents" form; the first and last "answer" usually makes reference to none but simple home remedies or pharmacopeial preparations. For instance:

> Q.: A good foot wash is made of a pint of water, to which are added a tablespoonful of salt and a pinch of alum and a few drops of arnica.

Every other "answer," however, contains a "joker" in the form of a nostrum, which is referred to in such a way as to lead the unsuspecting reader to imagine that it is but an ordinary official drug. Thus, in the advertisement before us, there are nine replies. Here is a sample:

> Ethel J.: (1) It made me happy to read your letter. I am glad you think so well of my recipes that you cut them out and pass them along to your friends. None should have difficulty in getting from her druggist any ingredient I name, for I never advise the use of anything that is not sold in first-class drug stores everywhere. (2) The only objection I know to the use of liquid complexion beautifiers is their high cost when purchased in a ready manufactured state. You can make at home a fine "liquid powder" that softens and whitens the skin by putting 2 teaspoonfuls of glycerin and 4 ounces of spurmax in ½ pint of boiling water; let stand until cold. Apply with the palm of the hand and rub until dry. I prefer this spurmax wash to any face powder I can buy.

The "joker" in this "answer," of course, is spurmax. In the other "replies," all worded in the same deceptive way, the reader is urged to get:

> CRYSTOS: for "tired and inflamed eyes."
>
> ALMOZOIN: for "blackheads . . . freckles and tan."
>
> CANTHROX: "for shampooing purposes."
>
> QUINOLA: "to remove dandruff, stop falling hair, relieve itching . . . and promote the growth of hair."
>
> PARNOTIS: "a flesh reducer that . . . should reduce your weight 10 pounds in a few weeks."
>
> KARDENE: "a splendid blood tonic and liver invigorator . . . for pimples, yellow blotches, sallow complexion, scrofula and all eruptions of the skin."
>
> LUXOR: "a very dear friend of mine cured a most obstinate case of eczema with this remedy."

Every week or so "Mrs. Mae Martyn's" fake department will appear in the paper, the initials of the "correspondents" and the wording of the "answers" varying, but the usual changes being rung on spurmax, crystos, almozoin, canthrox, quinola, parnotis, kardene and luxor.

Should the innocent reader go to the drug store and ask, say, for four ounces of spurmax, she is given the inevitable "original package," consisting of a tin box bearing a label with the name of the preparation, the method of using it and the various conditions for which the nostrum is recommended. There is also the statement: "made by H. S. Peterson & Co., 95-97 Kinzie St., Chicago." The company putting out these medicinal agents is not a firm of pharmaceutical chemists, but, we understand, manufactures flavoring extracts and does business largely by means of women agents throughout the country.

Four of these deceptively advertised nostrums were analyzed in the Association's laboratory. The laboratory report follows:

### ALMOZOIN

Almozoin, as found on the market, is a pale pinkish-white powder, having a faint odor like benzaldehyd. Qualitative examination of almozoin demonstrated the presence of magnesium, sodium, tragacanth, a carbonate and a borate. Free boric acid, ammonium salts and sulphates were absent. Magnesium and the borate radicle were determined and the tragacanth was approximately estimated. From the results of the examination it would appear that the composition of almozoin is essentially as follows:

| | |
|---|---|
| Tragacanth (gum tragacanth) | 40 per cent. |
| Sodium borate (borax) | 40 per cent. |
| Magnesium carbonate | 20 per cent. |

[Retail price of almozoin, one-half dollar; estimated cost of ingredients, three cents.]

### CRYSTOS

The specimen package of crystos which was purchased contained about one ounce and was a coarse, white, odorless powder. Qualitative tests demonstrated the presence of chlorid, free boric acid, borate, sodium and traces of sulphate. Alkaloids, ammonium salts, carbonates, heavy metals and potassium were absent. Determinations of chlorid and of free and of combined boric acid were made, from which it would appear that the composition of crystos is about as follows:

| | |
|---|---|
| Dried sodium borate (dried borax) | 20 per cent. |
| Sodium chlorid (common salt) | 20 per cent. |
| Boric acid | 60 per cent. |

[Retail price of crystos, one-half dollar; estimated cost of ingredients, one cent.]

### PARNOTIS

Parnotis is a pale, cream-colored, fine powder, having an odor resembling cologne, which dissolves in water and forms a turbid solution, which becomes clear by filtration. Qualitative examination of the preparation demonstrated the presence of a bicarbonate, sulphate, sodium and traces of chlorid and of iron. Quantitative determinations of the sulphate and of the bicarbonate were made, from the results of which it would appear that parnotis consists essentially of:

| | |
|---|---|
| Impure anhydrous sodium sulphate | 25 per cent. |
| Sodium bicarbonate | 75 per cent. |

[Retail price of parnotis, one-half dollar; estimated cost of ingredients, less than two cents.]

### SPURMAX

Spurmax is a pink, crystalline powder, highly perfumed. Qualitative tests demonstrated the presence of magnesium and of a sulphate. The absence of more than traces of chlorid, carbonate, organic compounds and heavy metals was shown by the usual tests. Quantitative determinations were made for magnesium, for sulphate and for water. Microscopic examination indicated that the coloring matter was very unevenly distributed throughout the preparation, some crystals being colorless, while others were very highly colored. Essentially, spurmax consists of:

| | |
|---|---|
| Crystallized magnesium sulphate (Epsom salts) | 100 per cent. |
| Perfume | trace |
| Coloring matter | trace |

[Retail price of spurmax, one-half dollar; estimated cost of ingredients, one cent.]

### NEW FORM OF AN OLD TRICK

Spurmax, then, when subjected to the critical light of analysis and shorn of the hypothetical virtues with which "Mrs. Mae Martyn" invests it, proves to be Epsom salts colored pink and rendered highly odoriferous; the "flesh reducer that . . . should reduce your weight 10 pounds in a few weeks," contains, apparently, nothing more marvelous than sulphate and bicarbonate of soda—and so it goes. The old, old trick of the charlatan, the quack and the nostrum exploiter is again in evidence: Give some well-known drug a fancy name, disguise it physically if possible, advertise it as possessing marvelous virtues and sell it at a price out of all proportion to its value.

The petty dishonesty shown in the method of exploiting these nostrums by means of a fake "woman's department" is disgusting. That otherwise reputable newspapers should sell their pages for such a bare-faced deception and defraud their readers by giving editorial sanction—for that is what a fake "answers to correspondents" department does—to a "patent-medicine" humbug, does not tend to increase one's confidence in the daily press. It is but fair to say, however, that some of the more particular papers insist on making plain to the reader that the thing is an advertisement, either by placing the abbreviation [Adv.] after the last "answer," or else by placing the matter on a page given over wholly to advertising. Such a course at least gives the reader some protection, as any advertisement inspires the attitude of *caveat emptor*.

Doubtless the financial returns from this style of advertising are a potent influence with those newspaper proprietors who are willing to carry this matter in the form of an original department. Advertisements as "straight reading matter" come high, but the profits derived from the sale of Epsom salts at $2 a pound are probably sufficient to bear it. Meanwhile, the "ultimate consumer," as usual, pays the bills.

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## BOARD OF TRUSTEES OF THE U. S. PHARMACOPEIAL CONVENTION

### Report of the November Meeting

The Board of Trustees of the United States Pharmacopeial Convention met at Hotel Walton, Philadelphia, November 26 and 27, with the vice-chairman, James H. Beal, in the chair, and the secretary, Murray G. Motter, recording the proceedings. Members present were as follows: James H. Beal, Scio, O.; Frederick W. Meissner, Jr., LaPorte, Ind.; Joseph P. Remington, Philadelphia; George H. Simmons, Chicago, and Henry M. Whelpley, St. Louis. H. C. Wood and Charles E. Dohme were absent, owing to illness.

The secretary was instructed to notify a publisher who had failed to recognize the copyright of the Pharmacopeia that the matter would be placed in the hands of an attorney unless the terms of the agreement were complied with by the publisher at once.

The board approved of a form of credentials to the 1910 convention, as presented by the committee on credentials.

It was decided to submit to the 1910 convention an amendment to the constitution which, if passed, will admit delegates from the Department of Agriculture of the United States Government.

Requests were received from numerous other bodies not entitled to representation in the 1910 convention under the present constitution. The board of trustees was requested to take the necessary steps to present to the convention an amendment to the constitution which, if passed by a three-fourths vote of the convention, will entitle these organizations to representation. After discussion, definite action was postponed until the January meeting.

The board of trustees considered other recommendations to be made to the 1910 convention and gave special attention to the subject of size, constitution and work of the committee on revision. Formal action was postponed until the next meeting.

The committee on credentials and arrangements for the 1910 convention met and organized by the election of Oliver T. Osborne, chairman, and Murray Galt Motter, secretary. H. C. Wood, Jr., Samuel L. Hilton, James H. Beal, W. L. Cliffe, and H. M. Whelpley were also present. A synopsis of the proceedings, with information about the appointment of delegates will be furnished the medical and pharmaceutical press by the secretary of the committee, in the near future.

HENRY M. WHELPLEY,
Secretary U. S. Pharmacopeial Convention.

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# Correspondence

### Meat Extracts and Beef Juices

*To the Editor*:—The editorial on this subject and the excellent work referred to on the same subject by the Council on Pharmacy and Chemistry (THE JOURNAL, Nov. 20, 1909, liii, 1744, 1754) are a timely warning to the medical profession. Some of the points presented, however, are not sufficiently emphasized and may even be misleading. The article presents the main objection to meat extracts and juices to be on account of probable starvation to the patient using them; it is stated (page 1744) that "it is even more important to note the surprisingly low calorific value" of meat extract and (page 1756) that "the physician is deceiving himself, starving his patients," etc.

More recent research shows that "starvation" is not the only danger in the use of such preparations, but that the extractives themselves are toxic to the body, either on their own part or by increasing bacterial growth in the gastro-intestinal tract, which results in a still further elaboration of substances acting like toxins.

In preparing meat juice for consumption, it is necessary to take 2.9 to 3.9 per cent. extractives (Bulletin No. 21, U. S. Dept. Agricult.) in order to obtain 2.19 to 6.97 per cent. of coagulable proteids, varying according to the method of expression. And the conclusion that such meat juice might have considerable value as food is open to serious objection on account of the simultaneous intake of so large an amount of toxic substance.

In the threatening convulsions of uremia, cholemia, eclampsia, etc., it is strictly contraindicated to prescribe meat juice, bouillons, or other foods containing meat extracts, on account of the danger of precipitating a convulsive attack and death. In many chronic conditions, such as gout, rheumatism, arteriosclerosis, kidney and liver diseases, appendicitis, ulcer of the stomach or duodenum, and in many nervous diseases, meat and meat juices are positively contraindicated.

In the surgical clinics in certain districts in Europe I recently observed a series of operations on the kidney, and several surgeons made the statement that the large number and severity of kidney lesions are due to the free use of meat juice, soups and gravies.

The extractives of meat are becoming a national question as concerning the etiology of groups of diseases which can be referred to meat-eating people. Watson Chalmers has graphically described the meat-eaters' zone and has shown an increase in disease peculiar to those who indulge in meat and meat extractives, but not peculiar to the people of those countries where nitrogen is obtained from vegetable proteins.

Rothberger concludes that the toxic symptoms of meat extract are due to some substance which the liver destroys (*Ztschr. f. exper. Path. u. Therap.*, 1905, i, 312-359). Pawlow observed that the ingestion of meat by an Eck-fistula dog was followed by a series of toxic symptoms.

Lieblein destroyed liver cells by injecting acid into the hepatic ducts, and toxic symptoms followed ingestion of extractives (*Arch. für exper. Path. u. Pharmakol.*, 1894, xxxiii, 318). Macleod noted a large amount of albumin in the urine of an Eck-fistula dog following addition of meat extract to the diet ("Studies in Pathology," Quarter-centenary of University of Aberdeen, 1906, p. 267). Salaskin believed ammonia to be the prime factor in causing the toxic symptoms (*Ztschr. f. physiol. Chem.*, 1898, xxv, 449). Pawlow injected sodium carbamate into the circulation of Eck-fistula dogs with negative results. Hawk repeated the injections and abandoned the theory. He fed Eck-fistula dogs with large amounts of meat extract (20-50 gm. daily for six to eight days) and obtained typical toxic symptoms which terminated fatally (*Am. Jour. Physiol.* 1908, ii, 21).

The injection of meat extract or any of the meat bases into the circulation has resulted negatively in demonstrating the presence of any special toxic body. It has been suggested that purin bodies and uric acid are derived directly from food rich in nucleins and extractives, but recent experiments have shown that these bodies can be formed synthetically from ordinary proteid. H. Trautner, after extensive research, is convinced that uric acid is the result of the activity of the colon bacillus in making reducing substances which undergo chemical changes in the blood. In 22 young rabbits he found no appreciable uric acid in the urine when no colon bacilli were present in the feces, but uric acid appeared when the animals were given colon bacilli added to their food (*Ugeskr. f. Laeg.*, Copenhagen, Sept. 23, lxxi, 1049-1070).

In my own experiments in which meat extractives or meat peptones were injected into dogs, the results were negative. Also injections of living or dead cultures of *Bacillus coli*, intravenously, subcutaneously or intraperitoneally, were negative. But when meat extracts and cultures of *Bacillus coli* were given together with food to dogs, over a definite period of time, lesions of the kidney, liver and stomach resulted and invariably death of the animal.

I have also fed meat extract to mice and rats, with the addition of cultures of *Bacillus coli*, and obtained toxic symptoms resulting in death. In these experiments, on account of increased growth of intestinal bacteria, the bacteriologic factor could not be ignored. It was plain that the meat extractives increased the numbers and activity of the intestinal bacteria. Extract-free meat was fed to animals and the bacterial content of the intestines decreased and no pathologic conditions followed (THE JOURNAL A. M. A., June 9, 1906, xlvi, 1753; *Jour. Med. Research*, xvii, No. 4; *Brit. Med. Jour.*, April 20, 1907).

The harmful effect of meat juice, therefore, must be chiefly due to the increased bacterial growth which it causes in the alimentary tract, and the symptoms which follow are more the nature of toxemia than starvation. If patients to whom meat juice would be prescribed are instead given extract-free meat, not only is the danger of extractive poisoning avoided, and of a resulting intestinal toxemia, but the concentrated protein quickly nourishes the patient.

FENTON B. TURCK, Chicago.

### Umbilical Hernia

*To the Editor:*—The report of Catchings' case of congenital umbilical hernia (abstracted in THE JOURNAL, Nov. 20, 1909, liii, 1779, from *Miss. Med. Month.*, November, 1909) recalls a case of my own. On Feb. 1, 1900, I delivered a baby boy of average size, with an umbilical tumor, larger, I think, than the one reported by Catchings. The contents of the sac were not adherent, and the various organs could be plainly seen through the translucent walls. I plainly recognized a portion of the liver, the spleen, stomach, colon and small intestines. The abdomen seemed entirely empty.

The contents were easily reduced and the cord sac tied very close to the abdomen and trimmed off, boracic acid freely applied and a thick firm pad and bandage put on. The child had no trouble and is to-day a strong healthy boy, with normal umbilicus and abdominal walls. For a while, however, the condition puzzled and worried me. It was my first and only case of that kind.

F. S. SMITH, Nevada, Iowa.

## Miscellany

### A New Blood Test

The importance, for forensic and clinical purposes, of the detection of blood, has led to a great multiplication of blood tests. Most of the substances used for this purpose depend on the power of the blood to carry oxygen from some oxidizing substance to another substance which develops a characteristic color by oxidation. The more important substances used for this purpose in a clinical way have been guaiacum, aloin, benzidin and phenolphthalin, while the oxidizing agent used has usually been turpentine or hydrogen peroxid. A serious objection to the use of guaiac and similar substances has been the great number of substances other than blood which may produce the change in color.

In discussing this matter, J. H. Kastle[1] states: "The general consensus of opinion among those who have given this subject their attention, would seem to be, therefore, that the guaiacum test for blood and similar color reactions are valuable, especially if they lead to negative results, as proving beyond the peradventure of a doubt that blood is absent. On the other hand, if a positive test is obtained, care should be taken to exclude oxidases or peroxidases by boiling, and the salts of the heavy metals and other oxidizing agents by chemical methods, and, if possible, to subject the material under investigation to confirmative tests for blood before finally concluding that blood is present."

Kastle's investigations of the various blood tests lead him strongly to recommend the phenolphthalin test. Phenolphthalin is a product of the reduction of phenolphthalein by means of zinc and sodium hydroxid. When oxidized in alkaline solution it is converted into pheonolphthalein, which gives a red color. The test has about the same delicacy as the benzidin test. In the presence of blood and hydrogen peroxid a red color is almost immediately produced. If blood alone without an oxidizing agent is present the reaction occurs more slowly. Kastle found it possible to prepare a fairly stable colorless alkaline solution of phenolphthalin. A solution of alkaline phenolphthalin containing hydrogen peroxid was prepared which could be preserved for forty-eight hours, if kept in glass-stoppered bottles, in a dark closet at ordinary temperatures. In some cases it was found that with certain specimens of distilled water a coloration, ranging from pink to red, was produced in the reagent as soon as the hydrogen peroxid was added. The reason for this appears to be the presence of very small amounts of copper. To obviate this difficulty the water was redistilled in glass vessels.

Kastle found that the oxidation of phenolphthalin in alkaline solution by blood alone and in the presence of hydrogen peroxid, was considerably retarded by extracts of various animal tissues. The reason for this action is not known, but it may reasonably be attributed to a reducing action on the part of the tissues. At any rate, the detection of blood is markedly interfered with by the presence of certain organic substances of animal origin. Certain specimens of urine known to contain blood failed entirely to give the reaction with phenolphthalin. In no instance has a method of blood testing been devised which will recognize in urine, feces, gastric contents, etc., as small an amount of blood as can be detected in water. Various methods of removing blood from such mixtures have been tried. Thus Heller tests for blood in urine by precipitating the phosphates by alkalies which carry down the blood with them. Kastle uses for this purpose a small amount of aluminum hydroxid. To the separated sediment he applied the phenolphthalin test, and he found that, used in this way, it was very delicate.

For clinical purposes it is quite possible for a blood test to be too delicate, while many possible fallacies may be excluded by the known circumstances under which the test is applied. For forensic purposes, however, all possible fallacies must be guarded against. The phenolphthalin test has been objected to on the ground that many other substances besides blood will respond to it. Kastle finds that most of these substances can be excluded by boiling the mixture; the others present certain differences of action by which they can be easily differentiated from blood. By applying the test to unknown stains prepared by another chemist, Kastle found that he could readily detect blood with certainty. The test bids fair to be a valuable addition to our resources.

**Rôle of Leucocytes in Absorption and Elimination of Medicaments.**—The facts which have been gathered by a considerable number of observers regarding the action of leucocytes in the absorption of medicines are collected in a very interesting article by Arnozan and J. Carles (*Revue de Therapeutique Medicochirurgicale*, Aug. 15, 1909; *Journal suisse de Chimie et pharmacie*, Aug. 28, Sept. 4 and Sept. 11, 1909). Besredka has shown that the leucocytes absorb by phagocytosis the insoluble granules of arsenic trisulphid, thereby delaying the death of animals fatally poisoned and assisting in the recovery of others if the dose is not too large. Landerer has shown that leucocytes take up the balsam of Peru injected in a state of fine subdivision, and Arnozan and Montel have made similar observations with reference to iodoform and calomel. Oils and milk and medicated fat, such as mercurial ointment, are similarly affected, according to J. Carles. Soluble salts may be absorbed in the same way. Thus salts of iron, silver, mercury, sodium salicylate, atropin, lecithin, etc., are taken up by the leucocytes and unevenly distributed throughout the body. The leucocytes do not always show the same tendency to absorption toward all medicines, and their activity may differ in different species of animals. The medicaments absorbed by the leucocytes may undergo various changes; they may be transformed within the leucocytes by the action of various ferments which these cells contain. They may be carried to the various tissues and may be eliminated by the various excretory organs. One point of great interest is the tendency to elimination at the seat of injury where the leucocytes collect according to the great chemotactic laws. By this means the accumulation of a medicine in an unusual concentration at the seat of a pathologic process may determine either remedial processes, or if the dose be too large, aggravation of the disease may occur. The fate of the leucocytes which absorb the various remedies is various. They may act simply as carriers or they may become temporary depots of the foreign substances, or lastly, they may emigrate with their charge of toxic material, passing into the intestines and becoming lost. The therapeutic

1. Bull. 51, Hyg. Lab., U. S. P. H. and M.-H. S., Washington, D. C.

suggestions based on these investigations are both interesting and important. The action of the leucocytes would make untenable the prevalent doctrine that medicines absorbed into the system are equally distributed throughout the tissues. It would seem probable that, on the other hand, the distribution may be very unequal. It is of especial interest to note that the tendency of leucocytes to collect about an inflammatory focus or other lesion allows of an efficient curative action by a small amount of medicament without an injurious effect on the system in general. For local affections remedies should be preferred which will be taken up by the leucocytes; on the other hand, general infections, toxemias, etc., may escape the action of remedies, because the toxins or bacterial agents producing the disease float free in the blood stream, while the drug which should neutralize or destroy them is locked up in the leucocytes. Another idea springing from this conception is that the leucocytes may take up food substances and become incapable of absorbing medicaments, or may have become so saturated with drugs that they lose their phagocytic power. Metastases and the action of derivatives may be explained by supposing that leucocytes carry toxins from one point to another.

**The Electric Forces of Mitosis and the Origin of Cancer.**—"Although exception may be taken to any conclusions which are drawn from purely statistical data, yet it would appear that the evidence so arrived at is overwhelmingly in support of the fact that one of the major predisposing causes of cancer is to be found in close inbreeding. Moreover, it would also appear from a detailed comparison of the organs attacked, that those organs which are subjected to stresses and irritations are most liable to develop malignant growth. Both of these conclusions are in close agreement with the theory of electrocytology." Thus are characterized the main factors in an etiologic consideration of cancer in an elaborate paper by A. E. and A. C. Jessup, E. C. C. Baly, F. W. Goodbody and E. Prideaux (*Bio-chem. Jour.*, July, 1909, iv, 191). By these observers normal somatic cell division is explained as the result of well-balanced electric forces which have their origin in electrically charged cellular colloids. When this balance is sufficiently disturbed by external influences, continuous atypical cell division is the rule and a pertinent predisposing cause of cancer is established. The phenomenon of sex production is attributed to these residual colloid charges, and all the phenomena of parthenogenesis, artificial fertilization, pathologic mitoses and sterilization by *x*-rays are explained by the same theory. The daughter cells of the pseudo-reducing pathologic mitosis possess renewed activity. They possess potential probability of conjugation with leucocytes and normal tissue cells. To these latter, together with the stimulation of the surrounding tissue cells by the degradation products of cancer cell metabolism, is attributed the formation of a neoplasm with power of continuous growth. The susceptibility of the cell to derangement is increased with decreasing vitality, such as occurs with age, and as a result of inbreeding. The rate of proliferation depends on the activity of the cytoplasm; the greater the activity the more rapid the growth, while the more highly differentiated the cell and the older it is the less rapid the rate of proliferation. As a concise summary: age incidence, local origin, infiltration, metastases, transmission with all its limitations, and power of continuous growth are the natural outcome of abnormal cell proliferation induced by a disturbance of the electrostatic forces present in normal mitosis.

**Glycogen in the Hypophysis and the Central Nervous System.**—From a microscopic study of human, sheep and calves' hypophyses, stained with specific stains, W. Neubert (*Beitr. z. path. Anat. u. z. allg. Path.*, 1909, xlv, 38) finds that glycogen occurs normally in the hypophysis. It is constantly found in the epithelium of the colloid cysts lying in the boundary zone between the anterior and posterior lobes, in the cysts themselves where a desquamation of epithelium has taken place, and in the colloid which results from this desquamation and transfusion. It is also found in the so-called nervous portion of the hypophysis, both within the glia cells and within the intercellular tissue of the posterior lobe. This latter occurrence of glycogen is indicative of the origin of the corpora arenacea and the corpora amylacea of the hypophysis. In pathologic conditions, as, for example, in diabetes, the percentage of glycogen is markedly increased and glycogen is then found in the parenchymal cells of the anterior, glandular lobe. Likewise, in diabetic subjects, glycogen is found in appreciable quantities in the brain, spinal cord and in the heart muscle, particularly in the lymph spaces, even though the blood contains only extremely small quantities. The occurrence of glycogen in the cystic epithelium and in the nervous portion of the hypophysis, Neubert thinks, is an expression of the embryonal nature of these tissues, of a primitive type of metabolism of the embryonal-like cells and the absence of any high degree of specialized functional activity. Glycogen formation in the liver is a product of a well-differentiated organ adapted to supply a simple primitive food for the nourishment of all the organs. Glycogen formation in any other organ, which is usually at the organ's own expense, represents a reversion from a highly specialized toward an embryonal state in an attempt to make good a deficient food-supply. This is especially true in diabetes.

**The Effect of Autocondensation in Diabetes Mellitus.**—Dr. F. deKraft, New York, at the recent meeting of the American Electro-Therapeutic Association, after citing 3 cases in detail, made the following deductions: Sugar and other products of impaired metabolism circulating in the blood in greatly increased amount act as irritants to the walls of the arteries, bringing about a form of arteriosclerosis closely resembling the senile form. High-frequency currents, applied preferably by autocondensation, or by the effleuve to insulated patient with grounded metal to back, regulate the circulation when it is unbalanced through profound influence on the sympathetic nervous system, improve the tone of the arterial wall, lower blood pressure, check the formation of toxins and strengthen the natural defenses of the body. They have a marked stimulating action on cell life and on the nutrition of cells at the farthest point. They increase the reducing power of hemoglobin, thus increasing oxidation in the tissues. Greater activity occurs in the kidneys and other glands, and there appears for a time more sugar in the urine, continuing until such time as the glycogenic balance in the liver cells and muscles is restored, after which, under continued treatment, the amount of sugar excreted steadily diminishes, and in favorable cases entirely disappears. In 5 cases of diabetes with marked constitutional symptoms in which the sugar excretion had been between 7 and 9 per cent., the urine has remained free from sugar for many months, and in all patients treated there has been marked improvement in general health.

**Salt-Free Diet in Hyperchlorhydria.**—Enriquez and Ambard report recent research which confirms their previous assertions in regard to the benefit from withdrawal of salt when the secretion of gastric juice is excessive and the stomach responds with pain. A salt-free diet has a prompt and marked influence on the excessive secretion; the influence on the pains is not felt so soon. Once established, the effect is durable, the pain subsiding permanently and completely in two or three weeks or at most in five weeks. As soon as the pain has been banished by a strictly salt-free diet, the patient is allowed to have his own salt-cellar to use as desired, the food still prepared without salt. This gives the patient a feeling of freedom which renders the restrictions less irksome, and as the capacity of the salt cellar is known, the exact amount he is taking can be estimated. The patient is also given the liberty to eat the ordinary food when dining out, or at certain intervals. The salt-free diet should be instituted in every case of hyperchlorhydria rebellious to other measures. The vanishing of the pains after withdrawal of salt may also turn the scale in favor of a benign gastric affection in certain dubious cases. The article from which the above is taken appeared in the *Revue de Médecine Interne et de Thérapeutique*, October, 1909.

**The Development of the Parasite of Oriental Sore in Cultures.**—The parasite causing Oriental sore was first described accurately by Wright and named by him *Helcosoma tropicum*. On account of their obvious affinity with the Leishman-Donovan bodies of kala-azar, Wright's bodies have been referred

by subsequent writers to the previously established genus *Leishmania* (Ross), and they now stand as *Leishmania tropica*, the only other known species of the genus being *L. donovani*, the parasite of kala-azar. The Wright bodies were first grown by R. Row (*Quart. Jour. Microsc. Sc.* 1909, liii, 747), who gives the cultural characteristics, a description of the fresh parasite when just taken from the sore, when grown on artificial media and when stained in Giemsa's stain. It was found not to grow in a sterile citrate solution (2 per cent.)—thus differing from the Leishman-Donovan bodies—but did grow well on human blood-serum. "The cultural result is very similar to that obtained for the Leishman-Donovan body. It is of some interest, however, that the method of cultivation required appears to be quite different in the two cases, a fact which indicates that the transmission and mode of development are different in the two parasites." "In smears from the juice of the sore stained in Giemsa's stain the parasites are seen in all sorts of shapes—pear-shaped, oval, torpedo-shaped and even spherical. They are found free outside the corpuscles and also in the large macrophages." In cultures after forty-eight hours the parasite in length is two and one-half to three times the diameter of a red-blood cell and about three times as long as broad. The shape is like a banana; "the contour of the body is well defined, the sides being parallel and the ends rounded"; the anterior extremity bears the micronucleus and the parasite has no power of movement. "At seventy-two hours the development is complete" and the flagellum has formed, which is "one and a half times or twice the length of the body of the parasite, and has from six to eight symmetrical undulations." Once the flagellum is formed, the individual is liberated and is free to swim away from the colony. "In life the flagellum is very active and moves very rapidly with a lashing, wave-like, not a corkscrew-like, movement; in appearance it strongly resembles a spirochete."

**The Nerves of the Atrioventricular Bundle.**—The location, physiology and microscopic structure of the atrioventricular bundle (the bundle of His), with particular reference to its nerve constituents, are considered by J. Gordon Wilson in a paper (*Proc. Roy. Soc.*, 1909, lxxxi, 151) reporting some of the results of his researches on this bundle. In his historical sketch of our knowledge of the bundle special reference is made to the work of Tawara, who claims that the atrioventricular bundle has a uniform arrangement in all mammals (including man), and the outspreading of the bundle into the atrial and ventricular musculature, respectively, consists of Purkinje fibers or their equivalents. This uniting system is early developed in the embryo. From this time on, leaving growth out of consideration, it remains unchanged during life. It is not affected by hypertrophic and atrophic processes in the heart in the same way as the ordinary cardiac muscle. Wilson finds that "anatomically the atrioventricular bundle contains not only a special form of muscle fiber distinct from the ordinary muscle of the atrium or the ventricle, but it is an important and intricate nerve pathway" in which are found numerous ganglion cells—monopolar, bipolar and multipolar. Abundant nerve fibers run through it in strands and there is an intricate plexus of varicose fibrils around and in close relation to its muscle fibers, also the abundant vascular system well supplied with vasomotor nerves. "Physiologically it has been shown that the atrioventricular band constitutes the pathway which assures the communication of the atrioventricular rhythm. When the bundle is sectioned or crushed the ventricles cease momentarily to beat, though they soon regain pulsation, but with a rhythm more slow than that of the atrium. Pathologic anatomy supports this view; the allorhythmia or Stokes-Adams disease can be explained satisfactorily by lesions involving this pathway." It has been very generally held that, this pathway being muscular, the conducting mechanism between the atrium and ventricle must be myogenic. The findings of Wilson are opposed to this hypothesis. "In these experiments and pathologic conditions an important nerve pathway is equally involved with the muscle bundle. Considering the neurogenic as opposed to the myogenic hypothesis from the anatomic standpoint, one must acknowledge that the very complex nerve constituents of the bundle are very suggestive of an intricate nerve mechanism." Finally Wilson discusses the possibility of the atrioventricular bundle being a neuromuscular spindle. The presence of ganglion cells and the absence of those anatomic and neurologic constituents characteristic of the muscle spindle are opposed to a neuromuscular hypothesis.

**Uniform Statistics for Puerperal Fever.**—P. Rissmann of Osnabrück suggests as a uniform basis for statistics in regard to puerperal fever that the record should include (1) brief record of the birth, date of entry, internal examination, injuries, and operation, if any; (2) temperature above 38.5 C., and date of first fever; (3) pulse over 100; (4) length of stay in the institution; (5) death and autopsy findings, or (6) discharged free from disturbances; or complications, if any; (7) remarks, existing or intercurrent affections, and (8) final outcome; later examination. He gives a specimen chart for the purpose in his communication on the subject in the *Gynaekologische Rundschau*, 1909, iii, 740.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### INJECTIONS OF ALCOHOL FOR FACIAL NEURALGIA

*To the Editor:*—Please refer me to information regarding the injection of alcohol for relief of facial neuralgia.
F. W. WILCOX, St. Petersburg, Fla.

ANSWER.—The following articles which have appeared in THE JOURNAL will give a fairly complete idea of the subject:

Patrick, H. T.: "Treatment of Trifacial Neuralgia by Means of Deep Injections of Alcohol," Nov. 9, 1907, xlix, 1567.

Patrick, H. T.: Same subject, report of seventy-five cases treated, Dec. 11, 1909 (this issue), liii, 1987.

Hecht, D.: "Methods and Technic of Deep Alcohol Injections for Trifacial Neuralgia," Nov. 9, 1907, xlix, 1574.

### "K" PACKAGE

*To the Editor:*—Please give the contents of the "K" package spoken of in the abstract of Raymond's article in THE JOURNAL, Nov. 20, 1907, liii, 1768.
C. O. HENRY, M.D., Fairmont, W. Va.

ANSWER.—The "K" package originally issued to soldiers at Columbus Barracks for the prevention of venereal disease, contained 2 c.c. of a solution of protargol, 20 parts, glycerin, 20 parts, and distilled water, 60 parts, and a medicine dropper, instructions being given to the soldier to inject this solution immediately after illicit connection. The package now in use contains 4 c.c. of a 25 per cent. solution of argyrol, 4 c.c. of a 30 per cent. calomel ointment, and a medicine dropper.

### COLONIES FOR EPILEPTICS

*To the Editor:*—In what states are there colonies for epileptics?
W. O. BELL, M.D., Seattle, Wash.

ANSWER.—Following are some of the state colonies:

Craig Colony for Epileptics, Sonyea, N. Y.

Hospital Cottages for Children, Baldwinsville, Mass. Hartstein Wendell Page, Medical Superintendent.

New Jersey State Village for Epileptics, Skillman, N. J. David Fairchild Weeks, Medical Superintendent.

Indiana Village for Epileptics, New Castle, Ind. W. C. Van Nuys, Medical Superintendent.

North Carolina has recently opened an epileptic colony in connection with one of her state hospitals for the insane. There are also state institutions of various kinds for the care of epileptics in Ohio, Texas, Pennsylvania, Kansas, Michigan and Minnesota, besides a number of semi-private institutions scattered throughout the country.

### THE NEGRI BODIES

*To the Editor:*—Please tell me where I can find Negri's original article (1903) on the Negri bodies in diagnosis of rabies? E. B.

ANSWER.—Negri published his discovery in the *Zeitschrift für Hygiene und Infectionskrankheit*, xliii, No. 3. An editorial on this subject in THE JOURNAL, Oct. 29, 1904, xliii, 1311, gives a brief account of the technic of investigation and character of these bodies. Another article by Negri appears in the periodical first mentioned, xliv, No. 3. These papers may be borrowed from the Surgeon-General's Library at Washington.

# The Public Service

## Medical Department of the Army

Changes for the week ended Dec. 4, 1909:

Brown, Orville G., capt, granted an extension of 10 days to his leave of absence.

Wales, Phillip G., major, relieved from duty at Fort Apache, Ariz., and ordered to the Presidio of Monterey, Cal., for duty.

Smith, Allen M., major, relieved from duty at the Presidio of Monterey, Cal., and ordered to Fort Sam Houston, Tex., for duty.

Raymond, Henry L., lieut. col., relieved from duty at Fort Sam Houston, Tex., and ordered to St. Paul, Minn., for duty as chief surgeon, Department of Dakota.

Maus, Louis M., col., relieved from duty as chief surgeon, Department of Dakota, and ordered to Chicago, for duty as chief surgeon, Department of the Lakes.

Byrne, Charles R., col., relieved from duty as chief surgeon, Department of the East; will proceed home at the expiration of his present leave of absence and await retirement from active service.

Blanchard, Robert M., capt., granted sick leave of absence for 2 months.

Ferguson, James R., 1st lieut., M. R. C., granted leave of absence for 4 months.

Barney, Frederick M., 1st lieut., M. R. C., granted leave of absence for 1 month.

Bowman, Madison H., 1st lieut., M. R. C., ordered to Seattle, for temporary duty on the transport *Dix*.

## Medical Corps of the Navy

Changes for the week ended Dec. 4, 1909:

Dickson, S. H., medical director, commissioned Medical Director from Oct. 31, 1909.

Fitts, H. R., medical inspector, commissioned Medical Inspector from Oct. 3, 1909.

Jones, E. L., P. A. surgeon, commissioned P. A. Surgeon from Jan. 6, 1909.

Ames, M. H., P. A. surgeon, commissioned P. A. Surgeon from March 24, 1909.

Allen, A. H., P. A. surgeon, commissioned P. A. Surgeon from May 2, 1909.

Furlong, F. M., surgeon, detached from the *Vermont* and ordered home and granted sick leave for 3 months.

Williams, R. B., surgeon, detached from the Navy Yard, Philadelphia, and ordered to duty in connection with the *South Carolina*, and to duty on that vessel when placed in commission.

Grunwell, A. G., surgeon, detached from the *Kansas* and ordered to treatment at the Naval Medical School Hospital, Washington, D. C.

Minter, J. M., asst-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the *Prairie*.

Foster, T. G., asst.-surgeon, ordered to the *Prairie*.

Schreiber, W. M., surgeon, detached from the Navy Yard, New York, N. Y., and ordered to the *Panther*.

Pleadwell, F. L., surgeon, detached from duty as a member of the Naval Examining and Medical Examining Boards, Washington, D. C., and to duty as assistant to the Bureau of Medicine and Surgery.

Shiffert, H. O., surgeon, detached from the *Lancaster* and ordered to the *Vermont*.

Braisted, W. C., surgeon, detached from duty as assistant to the Bureau of Medicine and Surgery and ordered to special temporary duty in the Bureau of Medicine and Surgery.

Hull, H. F., P. A. surgeon, ordered to the Navy Yard, New York.

# Association News

## NEW MEMBERS

List of new members of the American Medical Association for the month of November, 1909.

### ALABAMA

Anderson, E. C., Amiston.
Bell, A. W., Woodlawn.
Caffee, S. R., Avondale.
Collins, J. A., Birmingham.
Constantine, K. W., Birmingham.
Copeland, W. P., Eufaula.
Dowman, C. E., Jr., Birmingham.
Edmondson, J. H., Birmingham.
Levi, I. P., Anniston.
Mann, S. H., Ensley.
May, E. E., Birmingham.
McGehee, W. W., Montgomery.
Moon, E. K., Birmingham.

### ARIZONA

Kennedy, R. D., Globe.

### CALIFORNIA

Cerf, A. E., San Francisco.
McClelland, J. L., Los Banos.
Reed, J. R., Pasadena.
Wright, T. B., Pasadena.

### COLORADO

Farnsworth, J. A., Fort Morgan.
Harvey, Asa, Forbes Junction.
Roberts, Wm., Denver.
Thompson, Virgil, Hotchkiss.

### FLORIDA

Lartigue, Etienne, Gainesville.
Lowry, C. S., Jacksonville.
Thompson, T. C., Jacksonville.

### GEORGIA

Cone, R. L., Groveland.
Dancy, W. R., Savannah.
Darby, J. L., Columbus.
Dorsey, R. T., Atlanta.
Fox, R. L., Brunswick.
Hilsman, P. L., Albany.
Moncrieff, J. T., Columbus.
Ridley, C. L., Hillsboro.
Russell, E. A., Fitzgerald.
Willis, C. H., Barnesville.

### IDAHO

Boeck, L. W., Boise.

### ILLINOIS

Anderson, A. L., Aurora.
Atchison, A. B., Rockford.
Best, C. L., Freeport.
Bohan, J. M., Galesburg.
Bothwell, R. S., Batavia.
Campbell, R. L., E. St. Louis.
Clement, C. C., Chicago.
Everett, J. M., DeKalb.
Fouser, G. G., Chicago.
Frazier, F. R., Yorkville.
Gill, G. P., Rockford.
Goembel, E. W., Rockford.
Gordon, E. E., Cairo.
Hanford, F. W., Rockford.
Harney, L. G., E. St. Louis.
Helm, W. E., Chicago.
Hinton, R. T., Jacksonville.
Iseman, L. L., Chicago.
Keith, D. M., Rockford.
Krueger, A. H. R., Carpentersville.
Kulis, Jacob, Chicago.
Olkon, D. M., Chicago.
Olson, F. A., Chicago.
Scott, L. O., Rockford.
Seibert, H. H., Chicago.
Streuter, S. F., Arenzville.
Tyrrell, G. M., Scales Mound.
Maas, Elizabeth C., Rockford.
Mitchell, J. W., Harrisburg.
Wach, Frederick, Dover.
Winn, G. L., Rockford.
Woodward, W. P., Cherry Valley.

### INDIANA

Church, L. O., Fritchton.
Folsom, E. M., Boonville.
Hume, J. R., Milroy.
Koons, H. H., New Castle.
McBride, J. L., Zanesville.
Rogers, Clarke, Logansport.
Schriefer, E. E., Ferdinand.
Swan, D. H., Francisco.
Wallace, L. S., Bunker Hill.
Wilson, Ralph, Shirley.

### IOWA

Caldwell, E. J., West Chester.
Crawford, D. A., Guthrie Center.
Emmert, D. F., Avoca.
Gray, Clara, Scota.
Hay, G. W., Washington.
Marugg, A. L., Durango.
Newland, E. R., Drakeville.
Stevenson, A. P., Cincinnati.
Trueblood, W. A., Ottumwa.

### KANSAS

Beasley, J. N., Topeka.
Campbell, Farquhard, Kansas City.
Edington, J. L., Marysville.
Matteson, G. W., Herington.
Mitchell, M. R., Topeka.
Purves, G. K., Wichita.

### KENTUCKY

Foster, A. C., Owensboro.
Harrison, L. W., Alcorn.
Hurst, Taylor, Jackson.
Yates, J. C., Fulton.

### LOUISIANA

Cocram, H. S., New Orleans.

### MAINE

Roy, L. O., Augusta.

### MARYLAND

Barkdall, F. L., Cumberland.
Girdwood, John, Baltimore.
Wertz, I. M., Hagerstown.

### MASSACHUSETTS

Birnie, J. M., Springfield.
George, F. W., Worcester.
Hancock, A. W., Lawrence.
McIntyre, David, Boston.
Newton, R. S., Westboro.

### MICHIGAN

Aldrich, A. D., Winona.
Fair, R. C., Detroit.
Farnham, L. A., Calumet.
Kugler, J. C., Jackson.
McBride, G. L., Grand Rapids.
McLarty, A., Manistee.
Palmer, E. N., Brooklyn.
Ramsdell, L. S., Manistee.
Squiers, D. E., Dowagiac.
Williams, A. R., Jackson.

### MINNESOTA

Burns, F. W., Stewartville.
Comstock, A. E., St. Paul.
Kelley, E. S., Minneapolis.
Knight, H. L., Minneapolis.
Winnick, J. B., St. Paul.

### MISSISSIPPI

Holman, C. H., Heminway.
Mercer, R. L., Shelby.
Walley, D. W., Richton.

### MISSOURI

Boswell, A. C., Kansas City.
Bounds, E. H., Hannibal.
Horigan, J. A., Kansas City.
McLemore, Tipton, St. Louis.
Traubitz, Arnold, Neelyville.

### MONTANA

Gerhart, E. A., Billings.

### NEBRASKA

Tobias, J. M., Mitchell.

### NEVADA

Carpenter, F. E., Yerington.

### NEW JERSEY

Eaton, A. R., Jr., Elizabeth.
Frank, Myrtile, Egg Harbor.

### NEW YORK

Barber, C. R., Rochester.
Bell, A. M., Saranac Lake.
Brink, C. G., New York City.
DeVoe, B. K., Albany.
Eastman, F. C., Brooklyn.
Gardiner, S. H., Brooklyn.
Gross, Norris, New York City.
Lyon, I. P., Buffalo.
Markoe, J. W., New York City.
Todd, Leona E., Auburn.
Tuttle, F. E., Canaraugus.
Wood, E. L., Dansville.
Woodbury, M. S., Clifton Springs.

### NORTH CAROLINA

McBrayer, T. E., Shelley.
McGougan, J. Vance, Fayetteville.

### NORTH DAKOTA

Bunting, F. E., Mandan.

### OHIO

Crosby, C. C., Ashtabula.
Hamilton, C. H., Sugar Grove.
Hartzell, H. J., Cleveland.
Kimmel, E. E., Dayton.
Lucas, W. Cleveland.
Pan, Oscar, Cleveland.
Reich, Leo, Cleveland.
Riegel, H. C., Lightsville.
Rumbaugh, D. W., Chicago.

### OKLAHOMA

Blake, E. W., Talaquan.
Blender, Henry, Greene.
Stafford, G. A., Kiefer.
Williams, C. W., Oklahoma City.

### PENNSYLVANIA

Campbell, W. M., McKees Rocks.
Devor, J. H., Chambersburg.
McGuire, H. E., Pittsburg.
Page, C. W., Bradford.
Raub, R. S., Easton.
Stevenson, E. W., Pittsburg.

### RHODE ISLAND

Bailey, G. M., Providence.
Taggart, F. G., E. Greenwich.

### SOUTH CAROLINA

Woodruff, W. A., Cateechee.

### SOUTH DAKOTA

Brandt, F. A., Sturgis.
Keller, W. F., Sioux Falls.

### TENNESSEE

Brown, C. W., Nashville.
Hix, J. B., Whitleyville.
Joyner, W. H., Persia.
Relsman, E. E., Chattanooga.

### TEXAS

Arnold, E. M., Houston.
Cole, W. A., Normangee.
Coopwood, T. B., Lockhart.

### VIRGINIA

George, Sumter, Danville.
Hopkins, Frank, Hot Springs.
Iden, B. F., Manasses.
Peters, W. B., Appalachia.
Powell, W. L., Roanoke.
Runyon, Emily C., Richmond.
Tuder, T. J., Critz.

### WASHINGTON

Klemptner, L. H., Seattle.
Saxe, Cora T., Seattle.

### WEST VIRGINIA

Cook, T. G., Academy.
Cantle, H. C., Anawalt.
Haskins, T. M., Wheeling.

### WISCONSIN

Bennett, L. J., Fort Atkinson.
Bird, H. R., Madison.
Delaney, H. O., Beloit.
Edwards, W. A., La Crosse.
Elson, J. C., Madison.
Fuller, G. H., Madison.
Parker, A. S., Clinton.
Waufle, G. C., Janesville.

# Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

## Public Health Campaign in Boston

Mr. E. W. McSweeney of Boston has made a report to Hon. George A. Hibbard, the mayor of Boston, on the question of public health, which appears in the October *Annals of Medical Practice*. After stating that it is undeniable that the health of a community is its best asset and that the campaign against tuberculosis is only one part of the problem, Mr. McSweeney discusses the progress that has been made in anti-tuberculosis work since 1906 and recommends that the governor of Massachusetts and the mayor of Boston join in the appointment of a commission to consider the relations which should exist between the state and the city and to agree on a plan of action which will centralize action, reduce expense and increase results, which will aim at something and get somewhere. He furthermore states that, in his opinion, if a basis of cooperation between the state and the various cities and towns cannot be found, it will be much better for the state to take over the entire control of the consumptive problem and to relieve Boston altogether, rather than to continue the present unbusiness-like methods of work.

Mr. McSweeney's second recommendation is that, following the formulation of a general plan of government, the entire reorganization of the Boston health board will be necessary. He states that for more than a decade this body has been steadily losing ground and that it must be reorganized under a single head, no matter who the man is or whatever may be the cost. Especially interesting is his comment that it is no excuse for Boston to point out that it has only followed the bad example of the United States Government "which cares for health and quarantine matters through the Public Health and Marine-Hospital Service, vital statistics through the Bureau of the Census, pure food through the Department of Agriculture, etc."

Mr. McSweeney therefore recommends that the mayor of Boston address a letter to the president of the United States setting forth that, as the health of the city is the most vital concern of the nation, Boston desires to get in line with the most modern scientific progress in this regard and therefore asks for the loan of a competent physician now in the government service to act as medical adviser to the mayor for a period of two or three years. In this connection he mentions four physicians, officers of the United States Public Health and Marine-Hospital Service, whose work in the last few years has been noteworthy and conspicuous.

Taking up the question of the preservation of the child, he recommends that the school committee be relieved absolutely from responsibility for the medical treatment of the children in the schools, as the problem of tuberculosis and other diseases in the public schools is a health problem and not a school question. He states that the best plan which he has found is that adopted by the London county council, which is about to utilize existing hospitals and institutions for the medical treatment of children, giving financial help if necessary and carefully avoiding pauperizing the pupils. The plan proposes that while children suffering from a specific disease must be cared for, the parent shall have the first opportunity to care for them through the family physician and that when this is not possible the children shall be cared for in the hospitals and clinics established, the cost to be charged to the parent of the child treated unless they are unable to pay, in which case the cost is to be paid out of the city treasury.

## The Middleman in Medicine

The secretary of state of New York recently refused to file a certificate of incorporation of a Brooklyn concern organized to supply medical treatment and burial service to its members. The position taken by the secretary of state is important in view of the organization in various parts of the country of so-called "Burial and Aid Societies," which offer policies for a small weekly payment binding the company to furnish free medical and surgical service in case of illness, in many cases free medicines and surgical appliances, as well as funeral expenses in case of death.

The secretary of state has ruled that a corporation cannot practice medicine in New York. The company did not propose to practice medicine and surgery itself, but intended to make contracts with physicians to treat the policy-holders of the company at a nominal rate. The New York courts have decided that a corporation cannot practice law and this decision has operated to the extent of prohibiting a certain company in New York City from supplying its patrons with legal services, a scheme which, it is stated, it had worked up into an established and profitable business. By the same line of reasoning, the purpose of the proposed corporation in New York was simply to act as an agent or a middleman between the policy-holder or patrons on the one side and the physicians and undertakers on the other, the profits of the company to be found in the difference between the amount paid it by the policy-holder and the amount paid out to the doctor or undertaker for services.

This form of contract practice, as brought out in a previous discussion on this subject in THE JOURNAL (Dec. 14, 1907), is thoroughly reprehensible, since it amounts practically to buying the services of the physician at wholesale and selling them at retail, the middleman in the form of the exploiting company taking the profit. As was previously pointed out, this form of practice should be condemned, not necessarily because a contract exists for the rendering of services but because the arrangement made is economically unjust and is calculated to work injury to the physician, the patient and the public.

## POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

### Fourth Month—Third Weekly Meeting

#### PELVIC CELLULITIS

PATHOLOGY: Modes of extension of infection to cellular tissue. Lymphangitis, phlebitis, periiymphangitis and periphlebitis. Terminations, resolution, chronic cellulitis, suppuration. Involvement of adjacent viscera. Relation of cellulitis and tubal inflammation.

DIAGNOSIS: General symptoms. Location, form, relations, mobility, consistence of inflammatory exudate. Differentiate from pelvic peritonitis, pyosalpinx, pelvic hematocele, appendicitis, psoas abscess.

#### SALPINGITIS

ETIOLOGY: Abortion, labor, instrumentation, adjacent infections, menstrual congestion, acute exanthemata, distorted tube, etc. Micro-organisms.

CLASSIFICATIONS (a) Catarrhal, salpingitis serosa, resulting in sactosalpinx serosa—hydrosalpinx; (b) purulent, salpingitis purulenta, resulting in sactosalpinx purulenta—pyosalpinx; (c) hemorrhage leads to sactosalpinx hemorrhagica—hematosalpinx.

SYMPTOMS AND DIAGNOSIS: (a) Gonorrheal, (b) puerperal, (c) tubercular salpingitis.

#### OVARITIS

ACUTE AND CHRONIC: Pathology of each. Symptoms and physical signs.

#### PELVIC PERITONITIS

(a) Exudative, (b) adhesive, (c) tubercular, (d) pachyperitonitis; etiology and pathology of each. Differentiate pelvic peritonitis from pelvic cellulitis, salpingitis, ovaritis.

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# Society Proceedings

## COMING MEETINGS

American Physiological Society, Washington, D. C., December 28-30.
Medical Society of State of New York, Albany, January 25.
Southern Surg. & Gynecological Assn., Hot Springs, Va., Dec. 14-16.
Western Surgical and Gynecological Assn., Omaha, December 20-21.

## AMERICAN ACADEMY OF MEDICINE

*Third Mid-Year Meeting, held at New Haven, Conn., Nov. 11-12, 1910*

### CONFERENCE ON PREVENTION OF INFANT MORTALITY

As a result of the conference arranged by the American Academy of Medicine on prevention of infant mortality, the American Association for Study and Prevention of Infant Mortality was organized at a special meeting called at the close of the conference and held November 13 in Lampson Hall, Yale University. Dr. F. H. Gerrish of Portland, Me., presided, and Dr. Charles McIntire, Easton, Pa., acted as secretary. A constitution and by-laws were adopted and officers elected. These were noted in THE JOURNAL, November 20, p. 1751. It was decided that the board of directors should number at least thirty members. The complete number was not appointed, the directorate being authorized to elect additional members at a later meeting. Those appointed included Dr. H. Merriman Steele, Yale Medical School; Dr. Charles Richmond Henderson, professor of sociology of the University of Chicago; Dr. F. H. Gerrish, Portland, Me.; Dr. J. Morton Howell, health officer, Dayton, Ohio; Dr. John M. Connolly, Boston; Dr. H. J. Gerstenberger, Cleveland; Prof. Isabel Bevier, University of Illinois; Dr. W. H. Carmalt, Yale Medical School; Dr. Thomas Morgan Rotch, Harvard Medical School; Prof. Irving Fisher, Yale University, president of the Committee of One Hundred on National Health of the American Association for the Advancement of Science; Dr. Caroline Hedger, of the United Charities, Chicago; Dr. Lilian Welsh, Baltimore; Dr. J. F. Edwards, department of health, Pittsburg, Pa.; Dr. Richard A. Urquhart, Johns Hopkins Medical School, Baltimore; Dr. Charles P. Putnam, Boston; Dr. Thomas Darlington, health commissioner of New York City; and Dr. W. A. Evans, health commissioner of Chicago. Baltimore was selected as the next meeting place of the society. The meeting will be held in the autumn of 1910. Dr. Charles Richmond Henderson of the University of Chicago was nominated president for 1910-1911.

#### Resolutions Adopted

The task of preventing infant mortality is second to none in importance and should engage the best attention and effort of all individuals, lay and professional, and of every commonwealth and community. As looking toward this., the Academy records its convictions in the following resolutions:

FIRST. *Resolved:* That the present high rate of infant mortality is due to inherited debility or disease, improper environment and care, improper feeding and communicable diseases, and is to a high degree preventable.

SECOND. *Resolved:* That the breast feeding of infants is, when possible, the only proper method and that artificial feeding should never be substituted as a matter of choice.

THIRD. *Resolved:* That the reporting of all communicable diseases, especially of those commonest in society, to health boards, should be compulsory.

FOURTH. *Resolved:* That the scientific instruction of the young in practical hygiene and sanitation, and of mothers in the care and rearing of infants is an important duty resting chiefly on physicians, sociologists, school authorities and boards of health.

The conference was opened by a brief address of greeting by President Hadley of Yale University. The response was made by Dr. W. Blair Stewart of Atlantic City. There were four sessions. The first, devoted to the medical prevention of infant mortality, was presided over by Dr. J. H. Mason Knox, Jr., Baltimore, and Dr. Richard A. Urquhart, Baltimore, was secretary. The second session was on the philanthropic prevention of infant mortality and Dr. Edward T. Devine, general secretary of the Charity Organization of New York City, and editor of the *Survey*, was chairman, and Miss Lilian Brandt of New York was secretary. Institutional prevention of infant mortality was considered at the third session, which was presided over by Mr. Homer Folks of New York, secretary of the New York State Charities Aid Association, with Miss Mary Vida Clark as secretary. Educational prevention of infant mortality was the subject of the last session, the chairman of which was Prof. C. E. A. Winslow, biologist in chief of the laboratory of sanitary research of the Massachusetts Institute of Technology.

#### Relation of Alcoholism to Infant Mortality

DR. J. H. MASON KNOX, JR., Baltimore: The importance of united effort to curtail the long prevailing infant mortality is at last being generally recognized. Physicians should be in the van of this movement because they as a class understand most thoroughly the factors bringing about this large death rate among infants, and know how it can be much diminished. Public sentiment must be aroused to insist on suitable hygienic surroundings, adequate care and proper diet for every new-born babe. The minimum of these requirements must be pointed out by physicians. No field in medicine is more enticing. The potential energy of an infant saved from death by proper medical care and nursing supervision cannot possibly be reckoned. The future of these little lives cannot be foretold as can the lives of adults saved from disease. It behooves us then as physicians to investigate thoroughly all sources of this appalling death rate and to make them known to the public, at the same time suggesting remedies. Among the factors directly and indirectly destructive to the life of infants in this country and in most civilized countries is acute and chronic alcoholism in the parents. The injurious effect of alcohol on the infant is threefold: First, the mother's tissues, nervous system and other organs may be so weakened by taking alcohol as to lower her vitality greatly. Second, the germinal cells of both parents may be more or less injured by the ingestion of large amounts of alcohol. Third, alcohol imbibed in large quantities by the pregnant mother may affect the vitality of the fetus. The disastrous effect of chronic alcoholism on the home and so indirectly on the infant life needs little emphasis in this section.

##### DISCUSSION

DR. THOMAS MORGAN ROTCH, Boston: It is well in any consideration of the subject to remember that alcohol is a drug and as such has an important use.

#### The Relation of Tuberculosis to Infant Mortality

DR. CLEMENS VON PIRQUET, Baltimore: The great frequency of tuberculosis among infants is shown by the records of post-mortem examinations in Berlin, Vienna and New York. The different clinical forms of infantile tuberculosis are described as chronic tuberculosis of the visceral glands (which is often mistaken as a gastrointestinal marasmi), chronic tuberculosis of the lungs, caseous pneumonia, and the meningitic and bronchitic forms of miliary tuberculosis. Children infected within the first year of age nearly always die from tuberculosis, whereas in older children the process is often localized. The best prophylaxis would be the entire separation of infants from adults who are likely to be tuberculous, even separation from parents in such a case. As this cannot often be strictly carried out, prophylaxis has to be exercised at least in such a way as to avoid kissing and fondling of children by tuberculous people, and coughing in their presence.

##### DISCUSSION

DR. HELEN C. PUTNAM, Providence, R. I.: Does Dr. v. Pirquet consider that there is danger of infection to an infant in a family which moves into a house formerly occupied by a family in which there had been active tuberculosis? How long does such danger, if any, persist, and what amount of cleaning is required to render such a building suitable for occupation?

DR. THOMAS MORGAN ROTCH, Boston: In antituberculosis work care must be taken not to exclude tuberculous patients from institutions in which they would be benefited and in which they do no harm. There is a hospital in New England which is eminently fitted to receive tuberculous babies and young children, but from which all such were excluded. Finally, acting on my advice, non-infectious cases were admitted. As a result complete cures were effected within three or four months. The medical profession is indebted to

Dr. von Pirquet for his development of the subcutaneous test for tuberculosis, as it has proved to be a means of detecting the disease in an earlier stage than is possible by any other means. Dr. v. Pirquet's work with tuberculin will make his name go down to posterity as one of the great reformers in tuberculin investigations, and as one who has done an immense amount of good to humanity.

DR. WARD CRAMPTON, New York: Would Dr. v. Pirquet advise the segregation of school children who have reacted positively to the subcutaneous test? One society in New York discovered that 23 per cent. of the children examined responded positively. If an examination of the public school children were to reveal the presence of tuberculosis among an equally large percentage of the children, the problem of separation and segregation would assume very serious proportions.

DR. VON PIRQUET: A good cleaning of the whole house, with painting of the walls and fumigation of the rooms would be required to render a building such as described by Dr. Putnam free from infection. It has not yet been proved to what extent children suffering from tuberculosis are sources of infection. I do not consider it necessary to separate the children in a hospital except in the case of those suffering from open lung tuberculosis. I advise the separation of tuberculous children from well children when the test reveals the presence of the disease in an institution such as an orphan asylum, but do not urge the segregation of school children.

DR. T. M. ROTCH: In my opinion, the child who reacts positively should be taken out of school for his own sake, so that he may have outdoor treatment, and not because there is danger of his being a source of infection to others, especially as I do not consider that the danger always exists.

DR. GUY KIEFER, Detroit: Does Dr. Rotch consider it necessary to distinguish between open and closed cases among school children who react positively to the test and who on that account have been segregated from the rest?

DR. ROTCH: My previous remarks applied only to non-infectious cases; the infectious cases should be isolated just as measles and smallpox are.

### The Relation of Mothers' Occupations and Long Hours to Infant Mortality

DR. CAROLINE HEDGER, of the United Charities of Chicago, cited facts from England, America (colored) and Germany bearing on connection between occupation of married women and infant mortality. She discussed the influences on child-bearing and on lactation of beast-of-burden trades, muscular fatigue trades, nervous fatigue trades, and poisonous trades, and enumerated desirable modifications in these trades with respect to hours, sanitation, time-limit before and after confinement. Dr. Hedger then took up the secondary effects on infant mortality of married women at work: wages, drink, drugging, homes and abortion.

She then went on to say: Women are in industry to stay. William Hard says: We cannot tomorrow dismiss 6,000,000. We must (1) find out the effect of factory work on women by laboratories, enumeration, birth statistics; (2) so arrange labor that (a) the woman can work without losing her chance of normal motherhood, including lactation; (b) develop day-nurseries; (c) use them as laboratories for teaching infant feeding; (d) always tend toward a wage that will permit those who wish to remain at home.

DISCUSSION

MR. EDWARD BUNNELL PHELPS, New York, editor the *American Underwriter*, gave the statistics he had collected in an investigation which covered 14 textile manufacturing cities, of the relation of woman's work to infant mortality. These figures indicate that the infant mortality rate varies as does the percentage of working women of child-bearing age. This state of affairs is not confined to this country as, according to statistics representing eight leading textile towns in England from 1896 to 1905, the infant mortality rate is 182, while the normal rate for other towns is 147. In France, in textile towns, the rate was found to be 196, and in other cities 140; in German textile towns, 266; in other towns, 207. In the United States, the average in textile towns was 183, as against 145 for the registration area. According to the census of 1900 there were a trifle more than 1,000,000 women, sixteen years old and over, working in factories; their average earnings were a little less than 90 cents a day. In view of the inability of the mothers to care for their children themselves, or to provide healthful surroundings for their children, he advocated the establishment of some form of day nursery.

### The Relation of Diet to Infant Mortality

DR. J. P. CROZER GRIFFITH, Philadelphia: The excessive mortality of early life occurs principally in artificially fed children and is due chiefly to diarrheal disturbances. The mortality can be largely prevented by breast feeding. There are difficulties in obtaining a suitable artificial food. Many reasons are assigned for weaning, but there is an apparently increasing desire of mothers to nurse their children. Artificial feeding increases mortality.

DISCUSSION

MR. HASTINGS HART, the Sage Foundation, New York: In the case of illegitimate children, the main obstacle in the way of maternal nursing has been the practice of physicians and nurses in maternity hospitals of advising the mother not to nurse the child on the ground that they would have to be separated eventually, and the mother would become too much attached to the child if she nursed it.

DR. WOODS HUTCHINSON, New York: Artificial foods of any sort are to be condemned. Mortality is least among the breast-fed infants; the percentage is 3 times greater among those fed on cow's milk; and still greater among those fed on artificial foods. I hope to see the time when the manufacture, advertising and sale of mixtures ostensibly for babies, but really for the profit of the manufacturers, will be a misdemeanor punishable by fine and imprisonment.

DR. IRA S. WILE, New York: The responsibility for the proper feeding of infants rests on physicians, and goes back ultimately to the medical schools which should give more adequate instruction in pediatrics before turning its graduates loose on an innocent and unsuspecting public.

DR. LILIAN WELSH, Baltimore: It is not a question of physicians in some places, but of midwives.

DR. THELBERG, Vassar College, advocated thorough physiological instruction of the students in women's colleges and in girl's schools.

DR. HERMAN SCHWARZ, New York: The reduction of infant mortality could be accomplished by the combination of three methods: the care of the child before, during and for at least a year after birth; the education of parents; encouragement of breast feeding and securing pure milk for infants who have to be bottle fed. Breast feeding will reduce the great mortality from gastroenteritis.

*(To be continued)*

## Marriages

EDGAR CLAY DOYLE, M.D., to Miss Mary Cherry, both of Seneca, S. C., September 16.

CHESTER E. KINZEL, M.D., to Miss Elsie Bailey, both of Wilmington, Ohio, November 17.

CLELAND G. MOORE, M.D., North Bend, Neb., to Miss Emma G. Lewis, of Baltimore, October 5.

HARRY M. HOSMER, M.D., Gary, Ind., to Miss Helen Barton, of Kansas City, Mo., November 23.

ALBERT HAVENS, M.D., to Miss Gertrude Crabtree, both of New Philadelphia, Ill., November 20.

HARRY WALDEMAR BOICE, M.D., to Miss Fannie Elizabeth Glassey, both of Brooklyn, November 24.

PRESTON G. HUNDLEY, M.D., of West Virginia, to Miss Mary E. Lyell, at Baltimore, Md., November 24.

JOHN F. O. HOWELL, M.D., Skidmore, Texas, to Miss Wila Williams, of Hickman Mills, Mo., recently.

CHARLES R. SHERIDAN, M.D., Maysville, Ky., to Miss Helen Carney of Wheeling, W. Va., November 30.

JAMES R. MAXFIELD, M.D., Grand Saline, Texas, to Miss Marie Streeter, of Waco, Texas, September 29.

RICHARD PHILLIPS BELL, M.D., Chattanooga, Tenn., to Miss Mary Grasty, at Staunton, Va., November 24.

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## Deaths

**Alfred D. Kohn, M.D.** Rush Medical College, Chicago, 1898; a member of the American Medical Association; in 1907 and 1908 a member of the Chicago Board of Education; assistant in medicine in Rush Medical College; chief of the clinic on gastrointestinal diseases at the United Hebrew Dispensaries; attending physician to Michael Reese Hospital; a specialist on diseases of the stomach and intestines; died in the Michael Reese Hospital, December 2, from cerebral hemorrhage, eight days after an operation for appendicitis, aged 40.

**Isaac Newton Snively, M.D.** Bellevue Hospital Medical College, New York City, 1889; a member of the American Medical Association, and a fellow of the American Academy of Medicine; professor of materia medica, therapeutics and clinical medicine, and dean of Temple College of Philadelphia; visiting physician to the Garrettson and Samaritan hospitals; died in the latter institution, November 23, from pulmonary thrombosis, following an operation for carcinoma of the colon, aged 45.

**William Henry McKelvey, M.D.** College of Physicians and Surgeons, New York City, 1866; a member of the American Medical Association; for 37 years a member of the Pittsburg Board of Education; for 34 years a member of the Central Board of Education, and for 20 years its president; physician to the Allegheny county jail from 1868 to 1881; and for 30 years a member of the city council; died at the home of his brother, in Pittsburg, November 23, aged 66.

**Donald Churchill, M.D.** Harvard Medical School, Boston, 1899; a member of the American Medical Association and American Academy of Medicine; secretary of the Providence (R. I.) Medical Association and treasurer of the Rhode Island Hospital Club; admitting physician to the Providence Lying-In Hospital; and surgeon on the staff of the Rhode Island Hospital; died at his home in Providence, November 23, from septicemia, following an operation wound, aged 39.

**Harry Martyn Acheson, M.D.** University of Pennsylvania, Philadelphia, 1880; of Washington, Pa.; a member of the American Medical Association; for several terms president of the Washington County (Pa.) Medical Society, and the Washington Academy of Medicine; one of the organizers of the Washington Board of Health, and for many years its president; died in St. Francis Hospital, Pittsburg, November 29, from general nervous breakdown, aged 51.

**Albert M. Smith, M.D.** Jefferson Medical College, Philadelphia, 1870; a member of the American Medical Association; twice a member of the Pennsylvania legislature; a veteran of the Civil War; for 29 years local surgeon of the Pennsylvania System; a member of the local pension board of Beaver Springs; and vice-president and director of the Beavertown Mutual Fire Insurance Company; died at his home in Beaver Springs, November 22, aged 65.

**Richard Watson Fry, M.D.** University of Virginia, Charlottesville, 1872; College of Physicians and Surgeons, New York City, 1873; a member of the Medical Society of Virginia; of Roanoke, Va.; local surgeon to the Norfolk and Western Railroad; for several years city physician and president of the Board of Health of Roanoke; died in the Jefferson Hospital in that city, November 22, after an operation for prostatitis, aged 59.

**John Samuel Cooper, M.D.** Georgetown University, Washington, D.C., 1868; of Louisville, Ky.; from 1868 to 1880 a surgeon in the army; later special agent for the quartermaster's department, U. S. Army, and an officer of the revenue service; died in the Norton Infirmary, Louisville, November 25, from peritonitis, following an operation for disease of the bladder, aged 66.

**Samuel Kohn, M.D.** New York University, New York City, 1877; formerly president of the Sanitarium for Hebrew Children, Rockaway Park; one of the founders and chief of the laryngologic, otologic and rhinologic departments of the German Polyclinic; died at his home in New York City, November 26, from chronic nephritis, aged 55.

**John W. Slade, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1857; surgeon of the Eleventh Missouri Volunteer Infantry during the Civil War; for several years a member of the State Board of Medical Examiners of Oklahoma; died in his apartments in Guthrie, November 26, from senile debility, aged 83.

**Jacob Quick, M.D.** University of Pennsylvania, Philadelphia, 1851; surgeon of the Twenty-second New Jersey Volunteer Infantry during the Civil War; for a time a member of the staff of the German Hospital, Philadelphia; died at the home of his son in West Philadelphia, November 20, from senile debility, aged 83.

**John Charles Shearer, M.D.** State University of Iowa, Iowa City, 1896; a member of the Iowa State Medical Society; formerly of Tipton and Allison, Iowa; died at the home of his mother in Lehigh, November 18, from the effects of carbolic acid, self-administered, it is believed, with suicidal intent, aged 35.

**Henry Morton Mixer, M.D.** Berkshire Medical College, Pittsfield, Mass., 1854; assistant surgeon in the U. S. Navy during the Civil War; afterward a resident of New Hampton, Iowa, and since 1896 a practitioner of Neosho; died at his home in that city, November 23, from senile debility, aged 81.

**Hiram A. Wright, M.D.** Victoria College, Coburg, Ont., 1885; L.R.C.P., London, 1886; a member of the Michigan State Medical Society; an alienist and medical superintendent of the Pennsylvania Avenue Sanitarium, Detroit; died at his home in that city, November 24, from typhoid fever, aged 46.

**William Geoghan, M.D.** Albany (N. Y.) Medical College, 1873; a member of the Medical Society of the State of New York; one of the staff physicians of the Metropolitan Life Insurance Company; died suddenly at his home in New York City, November 27, from heart disease, aged 57.

**John Barr, M.D.** Victoria College, Cobourg, Ont., 1866; of Shelburne; for three terms a member of the Ontario legislature from Dufferin, and for two terms a member of the Dominion Parliament; was found dead in his bed in Ottawa, Ont., November 19, from heart disease, aged 66.

**George Emil Voigt, M.D.** University of Pennsylvania, Philadelphia, 1901; formerly coroner of Wayne county, Pa.; physician to the county jail and almshouse, and secretary of the Honesdale Medical Society; died at his home in that city, November 29, from uremia, aged 29.

**Harlow James Boyd, M.D.** Columbus (Ohio) Medical College, 1879; a member of the American Medical Association, and one of the most prominent practitioners of northern Minnesota; died suddenly at his home in Alexandria, November 21, from cerebral hemorrhage, aged 57.

**William Samuel Howard, M.D.** Medical College of Indiana, Indianapolis, 1892; L.R.C.S., L.R.C.P., Edinburgh, 1893; a member of the Roberts county (S. D.) board of health, and county physician; died at his home in Sisseton, November 19, from heart disease, aged 37.

**Henri Theophile Fontaine, M.D.** Harvard Medical School, Boston, 1894; a member of the New Hampshire Medical Society; physician in charge of the Pembroke (N. H.) Sanatorium since 1902; died in that institution, November 27, from tuberculosis, aged 42.

**Benjamin Robert Bryant, M.D.** College of Physicians and Surgeons, Baltimore, 1881; for two terms a representative in the House of Delegates from Southampton county, Va.; died at his home in Boykins, November 14, from pernicious anemia, aged 51.

**Virginius Randolph Moss, M.D.** Medical College of Virginia, Richmond, 1865; a member of the American Medical Association; for many years a practitioner of Barboursville, W. Va.; died in Moundsville,W. Va., recently, from senile debility.

**Burr Schermerhorn, M.D.** College of Physicians and Surgeons, New York City, 1863; a member of the local pension board and health officer of Honesdale, Pa.; died at his home in that place, November 25, from heart disease, aged 70.

**George H. Aldrich, M.D.** Tuft's Medical College, Boston, 1907; formerly house physician to the Waltham Hospital; and later a practitioner of Ludlow, Mass.; died in the Ludlow Hospital, November 22, from typhoid fever, aged 27.

**May Burton Collins, M.D.** Jefferson Medical College, Philadelphia, 1860; of Glasgow, Mo.; died at the home of his daughter in Kansas City, Mo., November 20, from skull fracture, due to a fall from a street car, aged 72.

**Charles C. Van Kirk, M.D.** Starling Medical College, Columbus, Ohio, 1897; a surgeon in the United States Indian Service; died at the Leech Lake Agency, Onigum, Minn., November 5, from spinal meningitis, aged 39.

**Harvey Mitchell** (license, Ind., 1897, years of practice); for 59 years a practitioner of Delaware county, Ind.; and since 1854, of Muncie; died at the home of his daughter in that city, November 22, aged 83.

**Lewis Edgar Klinefelter, M.D.** College of Physicians and Surgeons, Chicago, 1903; a member of the American Medical Association; died at his home in Rockford, Iowa, November 26, from typhoid fever, aged 32.

**Albert R. Lash, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1881; a member of the American Medical Association; died at his home in Ellinwood, Kan., October 10, from cerebral hemorrhage, aged 66.

**William H. McGuire, M.D.** Eclectic Medical Institute, Cincinnati, 1874; a member of the Indiana State Medical Association; pension examiner; died at his home in Frankfort, November 27, from cerebral hemorrhage, aged 62.

**Joseph Marion Lanham, M.D.** University of Tennessee, Nashville, 1882; a member of the South Carolina Medical Association; died at his home near Woodruff, November 25, from cerebral hemorrhage, aged 48.

**Aden Thomas K. Lynch, M.D.** Kentucky School of Medicine, Louisville, 1893; a member of the Kentucky State Medical Association; died at his home in Short Creek, November 22, from typhoid fever, aged 45.

**John C. Mahorney, M.D.** Hahnemann Medical College, Philadelphia, 1878; was kicked in the abdomen by a horse, near his home in Ladoga, Ind., August 10, and died two days later from his injuries, aged 57.

**Josephine E. McKenzie Roberts, M.D.** Hering Medical College, 1897; assistant to the chair of diseases of women in that institution; died at her home in Chicago, November 8, from angina pectoris, aged 59.

**Frederick William Fisher, M.D.** Detroit (Mich.) College of Medicine, 1894; a well-known marine surgeon of Ashtabula, Ohio; died at his home in that city, November 25, from typhoid fever, aged 38.

**Heber R. Elderkin, M.D.** University of Louisville (Ky.), 1858; a member of the Idaho State Medical Association; was found dead in his office in Coeur d'Alene, November 18, from heart disease, aged 78.

**James S. Knox, M.D.** Louisville (Ky.) Medical College, 1882; while preparing to make a professional call, died suddenly in his barn at Pellville, Ky., November 20, from heart disease, aged 49.

**Esther Hayes Young, M.D.** University of Minnesota, College of Homeopathic Medicine, Minneapolis, 1893; of Minneapolis; died in the Asbury Hospital in that city, November 15, from cancer, aged 63.

**Frank Kiefer, M.D.** Texas Medical College, Galveston, 1867; of Roby, Texas; for 40 years a clergyman; died in the Hollis Sanitarium, Abilene, November 25, from cerebral hemorrhage, aged 76.

**Chads D. Chalfant, M.D.** Western Reserve University, Cleveland, Ohio, 1886; a member of the Illinois State Medical Society; died at his home in Streator, November 22, from diabetes.

**Frederick W. Bates, M.D.** Baylor University, Dallas, Texas, 1904; of Dallas; died in the Baptist Sanitarium in that city, November 20, after an operation for appendicitis, aged 29.

**Robert Griffis, M.D.** Medical College of Ohio, Cincinnati, 1853; for 56 years a practitioner of Middletown, Ind.; died at his home, November 18, from cerebral hemorrhage, aged 83.

**Samuel James Kelly, M.D.** Laval University, Montreal, 1879; for three terms a member of the common council of Fall River, Mass.; died November 15, from diabetes, aged 53.

**Charles Fuller, M.D.** Medical School of Maine, Brunswick, 1869; formerly of Lincoln, Maine; died at his home in Dorchester, Boston, November 22, aged 69.

**A. R. McFadyen, M.D.** Jefferson Medical College, Philadelphia, 1859; died at his home in Jackson Springs, N. C., November 18, from paralysis, aged 78.

**Raymond Sauvage, M.D.** Tulane University, New Orleans, 1879; died at his home in New Orleans, November 20, from cerebral hemorrhage, aged 66.

**Charles F. W. Hall, M.D.** Jefferson Medical College, Philadelphia, 1875; died at his home in Parksley, Va., November 14, from cerebral hemorrhage.

**Edmund A. Crain** (license, Mont., 27 years practice, 1889); died in his apartment in Butte, November 26, from an overdose of morphin, aged 56.

**William J. Barron, M.D.** Tulane University, New Orleans, 1859; died at his home between Ackerman and Sturgis, Miss., November 22, aged 75.

**Edward N. Franklin, M.D.** University of Pennsylvania, Philadelphia, 1869; died at his home in Gallatin, Tenn., November 21, aged 64.

**Stephen Jack Welsh, M.D.** New York University, New York City, 1882; died at his home in Monroe, N. C., November 19, aged 55.

**George H. Schmitt, M.D.** Detroit (Mich.) Medical College, 1881; died at his home in Los Angeles, November 24, aged 62.

**Charles Cook Winslow** (license, N. C., 1889); died at his home in Hartford, November 9, from locomotor ataxia, aged 52.

# Book Notices

MODERN PROBLEMS IN PSYCHIATRY. By Ernesto Lugaro, Professor of Neuropathology and Psychiatry in the University of Modena. Translated by David Orr, M.D., and R. G. Rows, M.D. Publications of the University of Manchester, Medical Series, No. XII. Cloth. Pp. 305, with illustrations. Price 7 shillings 6 pence net. Manchester: University Press (Sherratt and Hughes), 1909.

The purpose of this book is to indicate the lines along which efforts should be made at the present time to solve the many difficult problems of psychiatry. We commend its study to every one who has, in any way, the care of the insane. It is in no sense a text-book wherein one may find cut-and-dried classifications and clinical descriptions to enable one to label particular cases that may fall under observation, but rather a series of essays logically connected and abounding in modern scientific data and philosophical discussion. Hypotheses naturally bristle throughout the book, for the author recognizes the oft-forgotten truth that "every particular cognition is a hypothesis, which, with an increase of experience, can acquire a greater degree of probability but which can never attain to absolute certainty" (p. 55). To the student of psychiatry Lugaro's work will prove to be more helpful and practical than nine-tenths of the text-book compilations with their confusing schemes of classification, ancient psychology, and unconfirmed clinical data. The body of the work consists of seven chapters. The general introduction rivets the attention at once.

Of modern psychiatry Lugaro affirms that "the general tendency which to-day is becoming increasingly stronger, aims at interpreting all mental disturbance as a pathologic manifestation, and welding psychiatry with general clinical medicine" (p. 17). We are cautioned not to "look on normal psychiatry as a purely introspective analysis" (p. 19); but to remember that "in no science do so many sciences dovetail into each other as in psychiatry" (p. 25). Indeed, the dominant tone of the book, so clearly sounded in this introductory chapter, is that "the alienist must—as much as the time at his disposal and his individual capacity permit—take an active part in work developing in neighboring fields of research, cultivate other sciences, and help them to progress, in order to further the progress of his own" (p. 55); a truth which John Fiske long ago intimated when he asserted that psychology, in its broadest sense, was the science of sciences because the validity of every scientific observation and deduction must rest ultimately on the validity and reliability of the phenomena of mind.

Determination, realism and idealism, and other metaphysical questions are all critically passed in review in Chapter 2 and are more or less dismissed with the statement, "We reject as illusory all these traditional solutions and we deny the legitimacy of the metphysical problem" (p. 39). Anatomy and physiology are regarded with more hope for the elucidation of mentalization.

The neuron doctrine is the ground whereon the "anatomic problems" of the third chapter are worked out. Of this much-debated doctrine the author says, "For a short period it seemed as though it might be shaken from its foundations; but this was merely transitory; criticism stimulated a multitude of researches, and it can now be asserted that the neuron doctrine has successfully resisted all the attacks made on it" (p. 90). In this same chapter are brief but comprehensive discussions of neurotropism, the neurofibrils, and the neuroglia in their functional relationship to mental phenomena.

With Chapter 4, on pathogenesis, we plunge at once into the practical problems of clinical psychiatry, and continued wrestling with them throughout the rest of the book. The rôle of the intoxications and infections, that of exhaustion, those of congenital deficiencies, and of psychic and hereditary factors in the production of mental alienation are admirably presented. The author deprecates the great stress so often laid on the psychic causes. "Even the forms of insanity which are considered to be most easily influenced, if not determined, by psychic causes, may arise independently and without the slightest participation of any psychic disturbance" (p. 184). The analysis of the hereditary factor is profoundly learned and thoughtful. In view of the oft-reiterated commonplaces as to the relationship of heredity to degeneracy, it is highly

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refreshing to read that "heredity, if it comes into play at all, acts in a direction which is distinctly opposed to degeneration. . . . Degeneration is a disease of the stock, but it is a disease that is curable. . . . The mechanism of hereditary transmission—contrary to the biblical legend—is free from every blemish. It tends to transmit unaltered the products of biologic experience and the adaptations which have been acquired throughout the whole of the evolution of life. External influences alone are capable of disturbing it or of giving rise to disease" (p. 212).

As a final illustration of the author's fearless independence and keenness of reasoning, we note the study, in Chapter 5, of the nasologic problems. No mere hack-writer or text-book compiler would have dared to say, in face of the almost universally contrary practice, that "it would be vain to seek for distinctions based on psychologic observation alone. We should fall into the old errors of mistaking simple psychic syndromes for true diseases and of failing to recognize the close affinity of origin and mechanism which exists between the most diverse syndromes" (p. 253).

Such is this most thought-stimulating and broadly scientific book. We have deemed it best to show the high plane of scientific inquiry which it touches by quoting liberally from its pages. And we earnestly commend its careful perusal by every medical man who is interested in psychiatric problems and who sincerely wishes to become acquainted with the latest advances in this difficult yet fascinating branch of medicine.

LEUCOPATHIES, MÉTASTASES, ALBUMINURIES ET ICTÈRES LEUCOPATHIQUES. Par Emile Feuillié, Préparateur à la Faculté de Médecine. Paper. Pp. 196, with illustrations. Price, 6 francs. Paris: G. Steinheil, 1909.

This monograph, the result, according to the author's statements, of seventeen years of investigation, bestows on the leucocyte a much more independent rôle than is commonly conceded to it. The conception of a "leucopathy," i. e., of primary modifications in the activities of the leucocytes (secretion, motility, organ infiltration, etc.) is created and a new nomenclature invented that is intended to express these special perversions. The introduction of many new terms and of the hypothetical pathologic conceptions they are meant to illustrate renders the understanding of the volume difficult. The author speaks an unfamiliar language; his disquisition may contain a valuable diamond of truth, but it is very much obscured by the setting given to it. It seems a pity that the nomenclature should be so involved; it prejudices the reader against the value of the statements made. What is true and what is new, could surely be expressed in simple language, readily understood by any one familiar with the ordinary terminology of the pathology of the blood. Of the many heterodox statements enunciated, the following may be selected as types: "In acute nephritis the lesion of the 'noble element' does not produce leucocytic infiltration. If infiltration is present it is due to a coexisting 'leucosis.'" "Cell casts in the urine are an indication of a leucopathy and not of a nephritis." "Edema may coexist with albuminuria; both are simultaneous effects of the same leucopathy." Much is said of nephrosis, nephrexosis and exonephrosis, of leucoxosis and exoleucosis and of leucopathic fibrosis, but it is all obscure. The pamphlet is offered as an incomplete thesis; and the writer naively states, "My master, Bouchard, has advised me to be brief in order to be clear." This is good advice, but it has not been followed. It is to be hoped that at some future day Dr. Feuillié will furnish a brief, clear and comprehensive exposition of this subject in order that more ample justice may be done his diligent labors by the ordinary reader.

TUFTS MEDICAL DIET CHARTS. (Charts A and B.) Prepared by H. D. Arnold, M. D., Professor of Clinical Medicine at Tufts Medical College, Boston. Single Charts, 5 cents; 50 Charts, $2; 500 Charts, $18; 1,000 Charts, $30. Philadelphia: W. B. Saunders Co., 1909.

These are conveniently arranged charts for indicating and calculating the value of the diet. Chart A has space for recording the diet for five successive days or for five changes of diet for any interval of time. Chart B fulfils the same function for a single day. The nutritive value of the food is given for such measures as are used in every-day life. The charts will prove of very practical value for those who give any thought to diet in the treatment of disease.

CHEMICAL AND MICROSCOPICAL DIAGNOSIS. By Francis Carter Wood, M.D., Professor of Clinical Pathology, College of Physicians and Surgeons, Columbia University, New York. Second Edition. Cloth. Pp. 725, with 192 illustrations and 9 colored plates. Price, $5. New York: D. Appleton & Co.

In this second edition of his well-known book, the author has kept his text clear and concise and has eliminated many tests which have proved less accurate and valuable than those inserted in their place. Additional matter has been introduced on some of the new methods for determining the functional activity of the gastro-intestinal tract, especially noticeable being the desmoid reaction of Sahli and the nucleus test of Schmidt. In the chapter on the blood, few insertions are found and, indeed, few were needed, as this section was exceptionally complete in the first edition. The discussion of the *Spirochæta pallida* is, perhaps, somewhat limited, although it is becoming more and more probable that this organism may be only incidentally associated with syphilis. It is unfortunate that Wood has made no mention of the work of Ricketts on the causation and spread of Rocky Mountain fever, as this is not only of great interest but is of extreme importance.

The introduction, into the section on urine, of Folin's methods for the determination of ammonia and of creatinin, as well as of various new and more reliable methods for the determination of beta-oxybutyric acid, has greatly enhanced the working value of this portion of the book. It would, however, seem that the author should have taken the opportunity in this revision to enlarge greatly his clinical discussions of the various factors, which may be closely studied in the urinary output.

It is in the section on transudates and exudates that one observes the greatest changes. Here one finds a discussion of Cammidge's reaction C, of the cutaneous and ocular tuberculin reactions, of the opsonic index, of the Wassermann and hemolytic tests, and a treatment of the Negri bodies as associated with rabies as well as of the Leishman-Donovan bodies as related to kala-azar. These insertions are treated clearly, although somewhat briefly; they should, however, prove of great value to the general as well as to the special student.

This work is to be especially commended for the clearness and brevity of its text, for its careful and judicious selection and discussion of the tests and methods advocated, and for its thorough treatment of the general subject matter of chemical and microscopic diagnosis. The cuts and plates are satisfactory and entirely adequate. A complete index makes the book a very easy one with which to work.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. Part VIII. Gout. By Prof. Dr. H. Strauss, Professor of the Third Clinic, Royal Charity Hospital, Berlin. Authorized American Edition. Translated Under the Direction of Nellis Barnes Foster, M.D., Associate Physician to the New York Hospital. Cloth. Pp. 70. Price, $1. New York: E. B. Treat & Co., 1909.

This little volume is the authorized American translation of a series of articles published seven years ago. They are written altogether for the general practitioner and make no claims to exhaustiveness. The chapters on the pathogenesis of gout, including the pathology and chemistry of uric acid, are clear and concise and contain all the information practically necessary. As was to be expected, particular importance is given to German publications, while the valuable American contributions to this subject are altogether omitted. The symptomatology of uricacidemia is covered in about two hundred words occupying one page. This brevity is commendable, especially by contrast with the voluminous, vague symptomatology covering many pages in other monographs on the subject. There are really very few clean-cut definite symptoms of uric acid intoxication.

The therapeutics of gout are very well presented in this work, especially from the dietetic standpoint. Much that is here recommended apodictically seems rather theoretical and commands consideration chiefly because it is supported by the authority of so careful and experienced a clinician as the author of this monograph. There is nothing new about the treatment of the acute attacks, or about the balneologic management of gouty cases. A great deal of conservatism is displayed in the recommendation of the protean array of drugs that have at different times been recommended for the treatment of gouty manifestations.

SEMMELWEIS, HIS LIFE AND HIS DOCTRINE. By Sir William J. Sinclair, M.A., M.D., Professor of Obstetrics and Gynecology in the University of Manchester. Cloth. Pp. 369. Price, 7 shillings 6 pence. Manchester: At the University Press, 1909.

With the exception of a small monograph written by Dr. Duka, a Hungarian, and published in 1888, this is the first biography of Semmelweis in the English language. This remarkable man, perhaps the only medical discoverer who can be ranked with Jenner in regard to the importance of his discovery, has a life-history as sad as it is interesting and instructive. Professor Sinclair has succeeded in giving a very interesting picture of the man and of the condition of obstetrical practice and teaching of his time, and in conveying a clear impression of the contents of his epoch-making and immortal work, "The Etiology, the Nature and the Prophylaxis of Childbed Fever." In drawing this picture Sinclair has quoted largely from all the chief physicians of Austria, Germany, France, England, Italy and other European and foreign countries, as well as from the work of Semmelweis himself. In this way we get impressive and fascinating details drawn by contemporary hands of a struggle for the acknowledgment of a truth.

The book is divided into nine chapters, the first two of which contain the introduction and a brief sketch of Semmelweis' parentage and nationality. Chapters 3 and 4 describe his life in Vienna, and the rise and spread of the doctrine of the contagiousness of puerperal fever, the disappointment of Semmelweis on account of his treatment, and his departure from Austria. Chapter 5 contains an account of the beginning of his work in Budapest and the further diffusion of his theory before the appearance of his book. In Chapter 6 there is a short but satisfactory abstract of Semmelweis' book, together with a review of his correspondence and an account of the further dissemination of his teachings. Chapter 7 gives an account of his last illness and a summary of the spread of Semmelweis' doctrine. In Chapter 8 the work of forerunners and contemporaries is reviewed and the claims of Holmes considered. While admitting the services of Holmes, Sinclair holds that the work of Semmelweis and that of Holmes are not to be compared. One made a discovery and founded a doctrine; the other did not contribute a fact of his own, but conferred great benefits on humanity by devoting his literary genius to attracting attention to puerperal fever and by trying to suppress the practices which brought childbed fever in their train. Sinclair says, "If Semmelweis could have written like Holmes his 'Etiology' would have conquered Europe in twelve months." In Chapter 9 the relations of the doctrine of the contagiousness of puerperal fever to bacteriology are discussed.

The book closes most appropriately with the eloquent sentiment of his sympathetic biographer, Bruck of Budapest:

"The great revolution of modern times, in obstetrics as well as in surgery, is the result of the one idea that, complete and clear, first arose in the mind of Semmelweis and was embodied in the practice of which he was the pioneer. When we with just satisfaction contemplate and enjoy the achievements which with mighty strides bring us nearer to the Fortune's crowning slope of full fruition, every time must the name of Semmelweis be uttered with grateful recognition."

CLINICAL TREATISES ON THE SYMPTOMATOLOGY AND DIAGNOSIS OF DISORDERS OF RESPIRATION AND CIRCULATION. By Prof. Edmund Von Neusser, M.D., Professor of the Second Medical Clinic, Vienna. Authorized English Translation by Andrew MacFarlane, M.D., Professor of Medical Jurisprudence and Physical Diagnosis. Part III. Angina Pectoris. Cloth. Pp. 71. Price, $1. New York: E. B. Treat & Co., 1909.

This monograph has been a recognized classic for a number of years. In so far as nothing new has been contributed either to the pathogenesis, the diagnosis or the treatment of angina pectoris since this treatise was written, the present English version fulfils a useful purpose. The translation is fairly good. It does not obscure nor does it embellish. The differentiation by type of case-reports from the text proper is omitted in the English edition, probably in order to make a larger volume.

A BOOK OF QUATRAINS, Original and Translated. By Frederic Rowland Marvin. Cloth. Pp. 101. Price, $1. Boston: Sherman, French & Co., 1909.

This little book is a compilation of original and translated quatrains, many of which are classical. It furnishes pleasant reading for a leisure hour.

# Medicolegal

## Company Maintaining Hospital Not Liable for Surgeon's Failure to Give Promised Notice of Changed Condition of Patient

The Court of Civil Appeals of Texas says that the case of Carroll vs. St. Louis Southwestern Railway Co. (120 S. W. R. 1079) was founded on the alleged failure of the chief surgeon in charge of the defendant company's hospital to comply with a promise he had made to notify the plaintiff of any unfavorable change in the condition of her son, as a result of a surgical operation he was to undergo for appendicitis.

Admitting all that was alleged—that the promise was given, and that the surgeon either wilfully or negligently failed to send the notice—the court does not think it followed that the railway company would be liable for the consequences of such failure. Before the company could be held responsible it must appear from the averments of the petition, at least, that it owed the duty of sending that notice to the plaintiff when the conditions arose calling for such information. The right to recover damages must depend on the breach of some duty assumed by contract, or imposed by the law of the land. It was claimed only that the surgeon made a promise, without alleging anything which would, in law, constitute a consideration giving to such a promise the force of a binding contract to perform the particular service. There was nothing to show that this promise was more than a personal and gratuitous undertaking on the part of the surgeon to accommodate an anxious mother. But, assuming that it was personally binding on him, there was nothing alleged which would show that he had authority to bind the company by any such promise.

The petition showed that the defendant was an ordinary railway corporation engaged in the business for which such companies are usually chartered. It maintained a hospital for the benefit of its sick and disabled employees, and had placed the surgeon in charge for the purpose of treating the inmates. Certainly, it could not be contended, with any show of reason, that this surgeon had the authority to make binding engagements to transmit to outsiders having no connection with that institution messages regarding the condition of the inmates.

From the facts stated, the only dereliction on the part of the railway company for which the plaintiff might have maintained an action for damages would be such negligence as might have caused the death of her son. But nothing of this character was charged.

If this action be regarded as one founded on the negligent failure to perform a legal duty, as distinguished from a breach of contract, the petition still failed to state any elements of damages recoverable in such a suit. No physical or personal injury was alleged, but mental anguish alone constituted the damages claimed. The doctrine laid down in the telegraph cases, and relied on by the plaintiff as sustaining her right to recover for mental anguish alone, distinctly places their holding on the ground of a breach of contract.

## Admissibility of Hospital Records as Evidence

The Supreme Judicial Court of Massachusetts applies, in the personal injury case of Delaney vs. Framingham Gas Fuel and Power Co. (88 N. E. R. 773), to hospital records, practically the same rules which it has applied to tradesmen's books, to determine their admissibility in evidence. The hospital records in question, it says, were not made in accordance with a requirement of law and therefore were not legal records within the meaning of the rule that legal records or copies thereof are generally admissible in evidence. Still it appeared that the hospital records were made in the usual course of business, by a person in the discharge of a duty, who appeared not only as the maker of them, but as their custodian. If she had died and her handwriting had been proved, in the absence of any other testimony as to the manner in which they were made up, they would have been admissible in evidence. It would have been assumed that the records were of facts known to her. The rule or requirement applicable to such records

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ordinarily is that the entries were made by a person who had personal knowledge of the truthfulness of the statements. That rule or requirement has been adhered to quite generally, except where in the course of the business the clerk making the entry received his information either orally or in writing from various persons whom he cannot expect to remember and whom it will be impracticable to call as witnesses.

But in this case it appeared that the person who made the records and had the custody of them, never had any personal knowledge of the facts stated therein; that she received slips of paper from the physician, and copied them into the record, and that was all she knew about them. The record was offered as evidence to show that the statements therein made were true. As handed to the witness by the physician, they were simply statements of the physician as to what the patient had said to him, or as to the diagnosis made by the physician. The records were comparatively recent. It was not shown that the physician was not living and within the jurisdiction of the court. No necessity was shown therefore for the introduction of this hearsay testimony. For aught that appeared there was better evidence. Under these circumstances the records were not admissible in evidence. The reason on which the general rule was based, namely, that the record should be a record of facts of which the writer had personal knowledge, should be applied. The case was not within the above-mentioned exception to the general rule.

### Assistant Not Liable from Operating Surgeon Leaving Sponge

The Supreme Court of Michigan says in the malpractice case of Brown vs. Bennett and Smith (122 N. W. R. 305) that it was the theory of the plaintiff that the defendants jointly undertook to perform an operation on her; that they, or one of them, left in the abdominal cavity one of the gauze pads or laparotomy sponges used in performing the operation; that it remained there for ten months; that this was negligence, and that for the effects of such negligence both of the defendants were liable. The trial resulted in a judgment against both of the defendants for $625.

But the Supreme Court finds no testimony tending to prove a joint undertaking of the defendants. The case for the plaintiff, it states, stated most favorable to her, was that she was advised by her physician, Bennett, who had treated her for certain disorders, that the remedy for her ailment was a surgical operation. The family of the plaintiff, including her husband, knew of this advice, consented that an operation should be performed, and that the defendant Bennett should select and arrange with some surgeon to perform the operation. They were told that Dr. Smith had been selected; that a trained nurse would be selected by him; that it was proposed that there should be present Dr. Smith, who was to receive $75, and Drs. Bennett, Crosby and Ransom, who were to be paid $10 each. The husband or father of the plaintiff, or both, agreed to procure, and did procure, $100 and gave it to Dr. Bennett, and took his receipt therefor. Afterwards they paid him $5. This money Dr. Bennett distributed as above indicated, receiving himself $10. The husband of the plaintiff, or some one for him, also paid the nurse. Every one understood that Dr. Smith would perform the operation, assisted by the other physicians.

There was some testimony to the effect that the contract made, not by the plaintiff, but by her husband and her father, was made with the defendant Bennett, and that he was to see that the operation was properly performed, and would guarantee a cure. But this did not tend to prove a joint undertaking by these defendants to perform the operation. It was said in the brief for the plaintiff that "the husband of the plaintiff agreed to employ Dr. Bennett and Dr. Smith to perform this operation," but it was the not uncommon case of a practicing physician advising a patient to submit to a surgical operation to be performed, not by himself, but by some surgeon of reputation, skill and experience, for which operation, with the consent of his patient, he makes the necessary arrangements, in performing which he assists the operating surgeon as directed or advised. The operation was not performed by these defendants jointly. Dr. Smith performed it, as his testimony and that of each of the physicians and of the nurse conclusively showed.

In accordance with modern methods, the operation was an organized performance. Dr. Crosby administered the anesthetic. That was his duty and responsibility. Drs. Bennett and Ransom assisted the operating surgeon. "They stood with me," Dr. Smith testified, "at the side of the patient and assisted me as I directed; that is, they retracted the sides of the wound when it was open, pulled them apart, the sides of the wound. They helped in regard to sponging up blood, and perhaps occasionally caught a spurting vessel when it was cut, and that is about all, generally. I performed the operation. The duty of Dr. Ransom was practically the same as Dr. Bennett." The nurse had charge of the sponges before and after they were used, and counted them before and after the operation. That was her duty. The operating surgeon, having inserted the large sponge or pads, and having removed all of them in the immediate field of operation, relied on the nurse and her assurances that all sponges were accounted for, and closed the wound.

Undoubtedly each case of this nature must stand on its own facts. The length of time required to perform the operation, the nature of the operation itself, as whether the field is deep in the abdomen, the number of pads or sponges used to keep the field of operation clear, the opportunity or chance for one or more of the pads to be displaced, rolled on itself, and hidden, all of these and other considerations measure the required skill and care of the surgeon.

It must be considered as established in this case that a sponge or pad was left in the abdomen, and that an injury to the plaintiff was the consequence. It was not claimed, and was not to be supposed, that any one was intentionally at fault. Both of the defendants were men whose general professional knowledge and skill were unquestioned and undoubted. They were not engaged in a trespass. Neither was employed by the other. Each was required to exercise ordinary skill and care. But direction and control of the operation were both with one man. Whether responsibility for what occurred is rested on contract or on negligent performance of duty, there is no rule of law which under the undisputed facts impute want of skill or care by Dr. Smith to Dr. Bennett. The jury should have been so instructed.

As to Dr. Smith, it is held that the court did not acquire jurisdiction over him, because he was a non-resident of the county where sued and under the circumstances could not be held to come within the Michigan statute, which, in effect, provides that what is termed an action of trespass on the case against two or more defendants may be brought in any county where one or more of them resides or is found.

The conclusions are held to require a reversal of the judgment, and no new trial.

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## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (*) are abstracted below.

#### Medical Record, New York

*November 27*

1 *Treatment of Pulmonary Tuberculosis Based on the Assumption that the Dietetic Cause of the Disease is Lime Starvation. J. F. Russell, New York.
2 Is There a Venereal Peril for Us? J. Van R. Hoff, U. S. Army.
3 *Hemolysis and its Diagnostic Significance in Cancer and Tuberculosis. F. Smithies, Ann Arbor.
4 Atropin as a Hemostatic. W. F. Waugh, Chicago.
5 *A Statistical Study of Alcoholism as a Causative Factor in Insanity. C. R. McKinniss, Norristown, Pa.

1. **Treatment of Pulmonary Tuberculosis.**—The special aim of Russell's treatment is to supply lime phosphate, casein, and hydrochloric acid together. Neither alone will answer. They must all be present in the stomach at the same time. The addition of dilute hydrochloric acid to milk and eggs accomplishes this endeavor. With the exception that vegetable juice is no longer prescribed and that the total amount of food consumed is less, the use of this acid is the only notable change made in the treatment heretofore employed. Vegetable juice, glycerin and calcium chlorid have been discontinued. It is now probable that the good effects of vegetable juice were chiefly due to its acidity; of glycerin to its power of extracting enzymes. Calcium chlorid is formed in milk when

hydrochloric acid is added. Russell believes that the results so far obtained give sufficient promise of an improvement in the treatment of the tuberculous in the home climate to warrant their publication. The experiment is not yet completed. There are 25 of the original number of patients still under treatment. Further reports will be made until the work is finished.

3. **Hemolysis in Cancer and Tuberculosis.**—The results furnishing the basis of Smithies' communication are based on the findings in 85 patients affected with various ailments. Some were very interesting, particularly the cancer patients, the syphilitics, the tuberculous patients, and those affected with non-malignant diseases, but with diseases frequently productive of anemia, as Graves' disease, pernicious and severe secondary anemia, Addison's disease, etc. Of the malignant tumors, in the main, serum from moderately advanced and advanced cases reacted well, while recent tumors either caused poorly manifested reaction or none at all. The cases which did not react at all were one early carcinoma of the prostate, one scirrhus carcinoma of the stomach, and one early malignant tumor of the breast. There were two "undetermined" reactions, namely a late cancer of the breast and an early cancer of the uterus. There was one case of "reverse hemolysis," first emphasized by Crile. Both these patients had moderately advanced lesions. Six patients with tuberculosis showed negative reaction, and a like number are for fairness recorded as "undetermined." Of 12 cases of syphilis, 8, or 65 per cent., were negative, while 3 were classed as "undetermined." In all, the reactions were slightly manifested. One case—a patient with tertiary lesions and grave anemia—exhibited positive reaction. Of 25 patients affected with various more or less serious diseases, selected at random, 5, or 20 per cent., exhibited positive reaction. Of 25 patients ill, but clinically non-cancerous, 6 were classed as "undetermined." These were respectively severe acne, chronic parenchymatous nephritis, old rheumatic endocarditis, gall-stones with jaundice, neurasthenia, and pernicious anemia. One case of chorea—a young female with anemia—exhibited "reverse hemolysis." Of the clinically normal individuals—19 in number—one gave slight positive reaction, while 92.7 per cent. were negative. It seems that the blood serum of the majority of patients affected with malignant disease is capable of destroying normal red blood cells. It also appears that while this fact is very interesting from a clinical and etiologic standpoint, similar manifestations are possible, in non-cancerous patients. It should be emphasized that while the sero-reactions for cancer and tuberculosis may furnish valuable and interesting information, they cannot be accepted as sole or deciding evidence. In confirmation of clinical findings they may be of importance, but as with other laboratory tests, of like nature, they cannot take the place of careful anamneses, careful examination of the patients from every viewpoint, and the adoption of clinical measures which have been proved feasible and dependable.

5. **Alcohol as a Causative Factor in Insanity.**—McKinniss' study includes 520 male patients. In 46 per cent. of these, alcohol either alone or in combination, was an important etiologic factor. In 13.5 per cent. they were classed as alcoholic psychoses. In 41 per cent. of the imbeciles and 34.5 per cent. of the epileptics, alcohol was responsible for their commitment.

## New York Medical Journal

*November 27*

6 *Relation of Tuberculosis to Infant Mortality. C. F. von Pirquet, Baltimore.
7 Surgical Treatment of Posterior Displacements of Uterus. C. C. Barrow, New York.
8 *Significance of Posture in Obstetrics. A. F. A. King, Washington, D. C.
9 The Percentage Principle as Applied in Infant Feeding. H. Koplik, New York.
10 *Biology as the Basis of Infant Feeding. H. D. Chapin, New York.
11 The Question of Clean Milk. W. L. Carr, New York.
12 The Feeding of Infants During Illness. L. E. La Fétra, New York.
13 Expert Testimony. T. J. Kelley, Willimantic, Conn.
14 *Post-epileptic Albuminuria. J. F. Munson, Sonyea, N. Y.

6. **Relation of Tuberculosis to Infant Mortality.**—Von Pirquet says that if we go carefully into a detailed study of the possibilities of infection, we find in nearly every case of tuberculous infants another person in the neighborhood who has an open tuberculosis. Whether the infection is directly through droplets containing tuberculous germs which are coughed out by the infected person and then breathed in by the child, or by bacilli taken in from the dust of the room in which tuberculous sputum has been dried out, is a question which has not yet been decided. In comparison with the danger of infection from other human beings in the neighborhood, that of infection through tuberculous milk is probably rather small. Still, the milk of cows with tuberculous udders very often contains tubercle bacilli, and we must consider it dangerous, and therefore remove all tuberculous cows from farms that supply milk for babies; if this is not done, or if we do not know the condition of the milk, then it must be boiled. The most important way to prevent tuberculosis in infants is, however, to be careful that the baby does not come in contact with anyone who is likely to have tuberculosis of the lungs.

8. **Posture in Obstetrics.**—King maintains that the recumbent posture during labor is much overdone, and that it often does harm by prolonging labor, by exhausting the woman, and sometimes leading to the persistence of faulty presentations. By persistently maintaining the recumbent posture, the woman is deprived of one of the chief factors of power—the factor of thigh pressure on the walls of the abdomen and uterus, which comes into play when she assumes a sitting, kneeling or squatting posture. This thigh posture is also the natural means by which transverse presentations are either altogether prevented, or, when they occur, are corrected. The act of squatting as usually practiced is not a symmetrical proceeding. Usually, in squatting, one foot is placed flat on the ground and in advance of the other, while this other foot, considerably posterior to the first, rests its toes only on the ground. The thigh of the forward foot will assume a more or less acute angle with the woman's spinal column and will come in contact with the abdomen over a large surface extending from the groin to a line considerably above the umbilicus; while the thigh of the posterior foot will be almost horizontal, and will have a much more limited surface of contact on the lower lateral part of the abdomen only. The direction of pressure by the thigh of the forward foot will be obliquely upward and toward the median line; the direction of pressure by the thigh of the posterior foot will be almost horizontal from without inward with a little upward lift.

In shoulder and arm presentations, if the woman in squatting always places that foot forward which agrees with the side of the abdomen toward which the child's breech is directed, the pressure of this thigh will come into forcible contact with the back of the child, and lift it and the breech end up toward the median line and ensiform cartilage; while the other thigh (corresponding to the foot that is placed posteriorly and resting on its toes) will press on the abdomen low down, over a smaller surface, and coming in contact with the projecting head of the child will lever it off of the iliac fossa, inward toward the median line, and thus into the pelvic brim, and so a head presentation is produced. And if, instead of squatting, the method of unsymmetrical kneeling is adopted, in which the woman kneels on one knee, the same rule is to be followed, the foot flat on the ground must be the one corresponding to that side of the abdomen toward which the breech is directed. Whichever method be tried, it is important that the woman maintain the selected posture long enough to have a few labor pains.

10. **Biology as Basis of Infant Feeding.**—Neither biochemistry, nor the question of the best producing power of food, nor the quantitative manipulation of the ingredients of various milks, Chapin says, can form alone a broad enough basis for scientific infant feeding. They may all be employed but must be subordinated to their proper place by biology. This science, however, will always put the emphasis on growth as the largest factor in early life. It likewise for the first time in the history of this question considers the developmental as well as the nutritive functions of milk in connection with the evolution of the particular digestive tract it is intended to serve. Along this same line it will incidentally show how far

various milks are interchangeable and suggest methods of making them so.

14. **Postepileptic Albuminuria.**—In studying a disease whose etiology is so complicated as that of epilepsy, Munson shows that a symptom such as the passage of albumin into the urine after seizures should not be overlooked. The possibilities that this albuminuria is due to an old nephritis which has passed unrecognized—and the nephritis might also have etiologic relationship to the epilepsy—makes it of importance in the study of the causation of the disease. Munson examined 34 patients at the Craig colony. Post-epileptic albuminuria occurred in 28.4 per cent. of the males, and in 12.3 per cent. of the females, or in 21.5 per cent. of the whole number of cases. As regards the kind of seizure in both males and females the entire number of seizures was made up of about 75 per cent. severe and of 25 per cent. mild attacks. Of the seizures followed by albuminuria 81.5 per cent. were severe and 18.4 per cent. mild, these figures being about those for each of the two sexes as well as for their average. It is thus seen that the occurrence of postepileptic albuminuria is greater in males and after severe seizures than it is in females and after mild attacks.

One of the most striking facts brought out in this work is that albumin is always accompanied by casts. The sediment picture is of all degrees—in some urines but one or two casts were to be found in a drop of sediment, while in others the field would be crowded with them. Microscopic fields containing 5 or 10 casts were not uncommon. Practically all varieties of cast were found, though, as may be expected, cellular varieties were rare. So severe is the picture presented in some of these cases that had the urine been received at the laboratory without clinical data, the guess would have been natural that the urine was from a case of severe nephritis. After the seizure, the casts persist much longer than the albumin.

It seems probable from the evidence submitted that there is renal congestion following many severe and some mild seizures. This alone is sufficient to account for the albuminuria, and perhaps for some of the casts. There are not a few cases in which signs of chronic nephritis are present on histologic examination. It seems to Munson that we have to deal with a condition which has its origin in the congestion following or associated at any rate, with the seizure and it does not seem an unfair presumption to assume that some of the chronic changes are due to the congestion, so often repeated.

### Lancet-Clinic, Cincinnati

*November 13*

15 The Problem of Living. C. Pope, Louisville, Ky.
16 Centralization in the Municipalities' Tuberculosis Work. W. C. White, Pittsburg, Pa.
17 The Tuberculosis Dispensary of Cincinnati. O. W. Stark, Cincinnati.

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18 Cerebral Decompression for Papilloedema and Brain Tumor. H. H. Hoppe, Cincinnati.
19 The Septic Tank in Sewage Disposal. B. Holmes, Chicago.

### Northwestern Lancet, Minneapolis

*November 15*

20 *Transactions of the Minnesota State Medical Association.

20. This issue of this journal is devoted entirely to the transactions of the 1909 meeting of the Minnesota State Medical Association.

### Southern California Practitioner, Los Angeles

*November*

21 The Indiana Idea of Human Sterilization. H. C. Sharp, Indianapolis.
22 *Bladder Resections. G. MacGowan, Los Angeles.
23 Trachoma. D. W. White, Phoenix, Ariz.
24 Irreducible Fracture of the External Condyle of the Humerus and Operation. F. E. Shine, Bisbee, Ariz.
25 *Abscess of the Liver of Unusual Origin. W. B. Power, Redlands.
26 Easy Method of Discovering Refractive Errors by the General Practitioner. W. H. Dudley, Los Angeles.

22. Published in *Northwest Medicine*, November, 1909.

25. **Abscess of the Liver.**—The chief points of interest in Powers' case, explaining, perhaps, the failure to diagnose the presence of the abscess, were the latent character and long duration of the trouble, the absence of physical signs or symptoms referable to the liver, the presence of evident lesions of kidney and lung, the absence of leucocytosis, and the non-appearance of jaundice.

### Journal Medical Society of New Jersey, Orange

*November*

27 *Medical Expert Testimony. T. P. Prout, Summit.
28 Symptoms, Etiology, Pathology and Treatment of Exophthalmic Goiter. F. McEwen, Newark.
29 When to Operate in Acute Abdominal Affections. A. J. Walcheld, Union.
30 A Plea for More Internists. K. H. Goldstone, Jersey City.

27. Abstracted in THE JOURNAL, Aug. 28, 1909, p. 736.

### Journal Michigan State Medical Society

*November*

31 *Unusual Forms of Syphilis of the Liver. A. R. Edwards, Chicago.
32 *Simple Refraction for Family Physicians: Its Promotion During 1908-09. L. Connor, Detroit.
33 *Cases in Which the Extract of the Corpus Luteum has been Used. W. H. Morley, Detroit.
34 *Present Status of Stomach Lavage. C. D. Aaron, Detroit.
35 Danger in Interval Appendectomies. W. H. Haughey, Battle Creek.
36 *Sarcoma of the Ulna. H. E. Randall, Flint.

31. Abstracted in THE JOURNAL, Oct. 2, 1909, p. 1122.

32. This article appeared in THE JOURNAL, Oct. 9, 1909, p. 1206.

33. **Extract of Corpus Luteum.**—Morley used an extract made from the corpora lutea of beef ovaries rather than an extract of the entire ovary as the consensus of opinion seems to be that the internal secretion of the ovary is produced by the yellow body. The extract is given in 5 grain doses, 3 times a day, from one-half to one hour before meals. His results in 18 cases may be summed up as follows: Five patients were cured, 12 were improved, and 1 obtained no relief. Included in the 12 patients who were improved are grouped those who are still taking the extract. A permanent cure may result in a few of those under treatment. Of the 18 patients, 14 suffered from disturbances of operation or artificial, and 4 from those of natural or physiologic menopause. While the results obtained in so small a group of cases do not warrant the drawing of any definite conclusions, still the author thinks that the results are favorable enough to justify a continuance of the treatment in other cases, where there is a disturbance incident to artificial or physiologic menopause.

34. Abstracted in THE JOURNAL, Sept. 25, 1909, p. 1047.

36. Abstracted in THE JOURNAL, Oct. 9, 1909, p. 1224.

### Memphis Medical Monthy

*October*

37 Staining Technic for Krauss' Modification of Giemsa's Stain. W. Krauss, Memphis.
38 A Case of Pellagra. R. G. Henderson, Memphis.
39 The Use of the Curette. O. S. McGown, Memphis.
40 Symptoms and Treatment of Typhoid Perforation. W. T. Pride, Memphis.

### Archives of Internal Medicine, Chicago

*November*

41 *Chronic Infectious Endocarditis. F. Billings, Chicago.
42 *Venous Pulse in Paroxysmal Tachycardia. F. W. Peabody, Baltimore.
43 *Relation of Iodin to the Structure of Human Thyroids. D. Marine and C. H. Lenhart, Cleveland.
44 *Use of Active and Inactive Serum in the Complement Deviation Test for Syphilis. H. F. Swift, New York.
45 *Ulceration of Stomach and Necrosis of Salivary Glands Resulting from Experimental Injection of Bile Salts. A. W. Sellards, Baltimore.
46 *The Effect of Hexamethylenamin on Guinea-pigs. C. Frothingham, Boston.

41. **Chronic Infectious Endocarditis.**—In the series of 14 cases presented in this report the disease manifested itself clinically over varying periods of time. In one patient, the symptoms began two years before the real condition was recognized. One case began fourteen months before a definite diagnosis was made. Another patient probably suffered from the disease for more than two years, and in the earlier part of the illness the diagnosis of typhoid was made for a condition which was, in all probability, infectious endocarditis, the diagnosis having been based on the fact that there was fever and splenic enlargement. No rose spots were found; there was no diarrhea, and the Widal reaction was negative throughout.

The infectious organisms found in Billings' 14 cases were as follows: The pneumococcus, 11 cases; streptococcus, 3 cases. The organisms obtained in the 11 patients suffering from pneumococcemia had many of the morphologic characteristics of streptococci. Study of the organisms in culture and in animals proved that they were the pneumococcus. In one patient of this series the infectious endocarditis followed pneumonia. Tonsillitis had occurred in two cases. In the other patients the source of infection could not be learned. There can be no doubt whatever that simple local infection like tonsillitis, as well as abscess of the aural cavities, infection of the postnasal space of the antra, and so forth, may be the port of entry.

In some cases of this series the infection was implanted on an old endocardial or valvular scar. An old heart lesion existed in 7 patients, of whom 6 had suffered from rheumatic fever and one from chorea. Two of the patients gave no history, and the question of previous heart lesion was in doubt. In 5 the infection had apparently been implanted on a normal endocardium or valve. The valves involved in the 14 cases were as follows: aortic valve alone, 1; mitral alone, 7; pulmonary semilunar alone, 1; aortic and mitral together, 5; mitral and tricuspid together, 1. The evidence of heart lesion, as manifested by murmur, may be absent in the primary cases during the earlier part of the disease, and sometimes throughout it. The prognosis with the present knowledge or want of knowledge in reference to any specific treatment is, in his experience, bad.

The treatment should be absolute rest, with good air, sunshine, as much simple liquid and soft solid nourishment as may be given, and the use of those remedies which will conserve the patient's strength and the functions of the organs without too much mischievous interference. Inoculations of patients with large doses of their own dead pneumococci was always harmful. Observation of patients injected with even small doses (2,500,000) leads Billings to believe that this form of treatment for infectious endocarditis due to the pneumococcus is not only devoid of benefit to the patient, but probably is harmful.

42. **Venous Pulse in Paroxysmal Tachycardia.**—From the point of view of the venous pulse all cases of paroxysmal tachycardia apparently fall into a group which includes those cases in which the venous pulse assumes the "ventricular" or "positive" type, and there is no evidence of any contraction of the auricles. It is important to distinguish between cases of idiopathic paroxysmal tachycardia, with sudden onset and cessation, and cases of simple rapid heart action beginning and ending more or less gradually.

43. **Relation of Iodin to Structure of Human Thyroids.**—Marine and Lenhart conclude that active thyroid hyperplasia is present in all developing goiters in all animals. All thyroid hyperplasia so far as they can determine, is anatomically, chemically (iodin) and biologically the same. Thyroid hyperplasia develops in both normal and colloid glands. Colloid glands, anatomically, chemically and biologically, are the nearest approach to the normal gland that hyperplasias can become, and obey all the known biologic laws of normal glands in so far as these laws are at present known. The various degenerations, hemorrhages and cysts are secondary and complicating changes engrafted on to the three fundamental types of normal hyperplastic and colloid glands. Iodin is necessary for normal thyroid activity. The iodin content varies inversely with the degree of hyperplasia. The percentage of iodin present in the thyroids is variable, but there is a quite constant minimum percentage necessary for the maintenance of normal or colloid gland structure. Iodin is taken up rapidly by the thyroid, the rapidity depending on the degree of active hyperplasia. Mild degrees of thyroid hyperplasia accompany or follow many of the chronic nutritional disturbances without detectable clinical symptoms referable to the thyroid. Exophthalmic goiter is constantly accompanied during the progressive stage of the disease by thyroid hyperplasia and the iodin percentage varies inversely with the degree of hyperplasia. In endemic cretinism the fibrous overgrowth with atrophy of the gland cells is consequent on active hyperplasia and is associated with very low iodin content. In myxedema the anatomic and iodin changes are similar to those of cretinism.

44. **Active and Inactive Serum in Test for Syphilis.**—Although the use of active serum gives more delicate results in syphilis, Swift says it is not to be recommended, because it gives too high a percentage of reactions with non-syphilitic serums. When inactive serum is employed in the proportion of twice the amount of guinea-pig serum, a high percentage of positive reactions is obtained in syphilis, and non-syphilitic serums, giving a positive reaction with active serum, give a negative reaction when the same serum is inactivated. The use of inactive serum instead of active serum renders the Noguchi method more accurate and nearly as convenient as originally described, and still easier of application than the Wassermann method. The amount of blood required can readily be obtained without resorting to venous puncture, so that it is possible to make frequent tests without too much inconvenience to the patient.

45. **Lesions Resulting From Bile Salts.**—Sellards found that the injection of guinea-pigs with the lethal dose of sodium glycocholate produces lesions in the stomach which are relatively specific. These lesions are closely analogous to those produced by the direct injection of bile into the pancreatic duct. Injection of sodium taurocholate into the parotid gland of dogs produces lesions which are less extensive than for corresponding conditions in the pancreas. An extract of the pancreas is actively hemolytic *in vitro*. Its behavior toward blood serum and corpuscles in test-tube experiments is exactly analogous to that of the bile salts. The pancreatic ferments might, theoretically, augment the lesions produced, *in vivo*, by bile. The hemorrhage in the acute pancreatitis caused by bile would, judging from the hemolytic reactions, tend to neutralize both the toxic action of the bile salt and also of the pancreatic secretions.

46. **Effect of Hexamethylenamin on Guinea-Pigs.**—Frothingham found that hexamethylenamin, when given subcutaneously in guinea-pigs, either in single doses or in repeated doses, produces necrosis of the muscle and cellular reaction at the point of inoculation. It also causes congestion of the stomach vessels, and in some cases hemorrhage into the mucosa, with ulcer formation. Frothingham says that this work offers no proof as to what lesions in man may be the cause of symptoms occasionally produced by hexamethylenamin, but it suggests that these lesions are not organic. The most interesting points brought out are the enormous amount of hexamethylenamin a guinea-pig can receive subcutaneously without apparent injury, and the fact that hexamethylenamin is another drug to add to the list of those that may cause hemorrhage in the stomach walls of guinea-pigs.

### Ophthalmic Record, Chicago

*November*

47 Conservative Surgery in Ocular Injuries. L. W. Fox, Philadelphia.
48 The Major Smith Modification of the Modern Cataract Operation—Intra-Capsular Extraction of the Cataractous Lens. R. Sattler, Cincinnati.
49 An Operation for Enucleation of the Eye. M. Iversen, Stoughton, Wis.
50 Keratoplasty with the Rabbit's Cornea. F. Valk, New York.
51 Teaching of Ophthalmoscopy to Undergraduates and Graduates in Medicine. W. A. Fisher, Chicago.
52 Ocular Symptoms in Pellagra. E. M. Whaley, Columbia, S. C.

### Colorado Medicine, Denver

*November*

53 *Tuberculosis and Its Treatment by Mercury. B. L. Wright, U. S. Navy.
54 Correlation of Pathologic States Between the Thyroid and Prostate Glands and the Uterus, Chiefly Bearing on Epilepsy and Other Nervous Disorders. E. Dupuy, Paris.

53. **Tuberculosis.**—Since the latter part of October, 1908, Wright has made it a routine practice to examine the feces as well as the sputum of every tuberculous patient, and in almost every instance he has demonstrated the presence of the tubercle bacillus in the feces, in many cases in which repeated examinations of the sputum were negative and in which the pathologic lesions of the disease were apparently confined to the lungs. He has also found the bacillus in the feces in cases in which it had long since disappeared from the sputum and the patients appeared to be otherwise clinically

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cured. With the above facts in view, it must be admitted, he says, that tuberculosis is primarily a general systemic infection, a bacteremia, but never a local condition under any circumstances. Since February, 1908, Wright has advocated the treatment of this disease by the deep muscular injections of mercury. Experience has led him to modify in some degree the dosage he first used and recommended. He says: Begin with grain 1/15 of mercury succinimid; give injections every other day; slowly increase the dose until a slight tenderness of the gums or a slight diarrhea is produced, then reduce the dose until these symptoms are overcome, and continue the injections until thirty have been given. Then give the patient a rest for two weeks; at the end of this interval of rest resume injections, using the dose used at the last previous injection, and continue on this dose as long as the patient continues to improve, up to thirty injections; if any untoward symptoms arise, or the patient does not appear to be doing well, reduce the dose, or alternate injections of mercury with injections of arsenious trioxid, gr. 1/30 and ferrous citrate, gr. 1/2, for a short time. Each series of injections should consist of thirty, with two weeks of rest intervening. As treatment progresses smaller doses of mercury are required. At the end of one year's treatment a rest of from 2 to 3 months should be given, when, if the patient is not cured, treatment should be resumed. As many patients with syphilis do not respond entirely to mercury but do better when this drug is combined with arsenic, so many patients with tuberculosis do better when arsenic is added to the doses of mercury.

Good results from this method of treatment have been obtained irrespective of what organ or tissue has shown local involvement. Of 83 patients treated by this method during 1908, 89 per cent. were improved, 7 of whom were cured. Of 24 cases of secondary ulcerative tuberculosis of the larynx, 20 were cured; the 4 remaining patients died within two months after admission, post-mortem showing in each case advanced lesions of practically all the organs, and yet in one of these the extremely marked ulcerative process in the larynx was completely healed. Four patients with general glandular involvement, 3 of whom had a suppurative process of the anterior cervical glands, were cured. One patient with tuberculous epididymitis was cured.

### Northwest Medicine, Seattle

*November*

55 The Physician of To-day and his Relation to the Public. W. O. Spencer, Huntington, Ore.
56 *Resection of the Bladder for Malignant Disease. G. MacGowan, Los Angeles.
57 Conditions Simulating Bladder Tumors. G. S. Whiteside, Portland, Ore.
58 The Nasal Septum, its Strategic Position and its Baneful Influence on the Eyes and Ears when Deviated or Otherwise Deformed. Submucous Resection. F. W. Hilscher, Spokane.
59 Injury to the Knee and Ankle Joints. O. M. Jones, Victoria, B. C.
60 Epileptoid Conditions. W. T. Williamson, Portland, Ore.
61 The Doctor. E. H. Van Patton, Douglas, Wash.

56. Published in the *Southern California Practitioner*, November, 1909.

### New York State Journal of Medicine, New York

*November*

62 Diagnosis of Pulmonary Tuberculosis. H. S. Goodall, Lake Kushaqua.
63 Management and Care of Tuberculosis. E. R. Baldwin, Saranac Lake.
64 Surgical Aspects of Tuberculous Lesions. E. A. Vander Veer, New York.
65 Tuberculosis in Eye Diseases. J. W. Stirling, Montreal.
66 Artificial Dilatation of Stomach and Colon as Aids in Abdominal Diagnosis: A Helpful Sign in Chronic Appendicitis. W. A. Bastedo, New York.
67 Early Diagnosis of Intestinal Cancer. I. S. Haynes, New York.
68 *Chronic Appendicitis as an Etiologic Factor in Other Conditions. H. J. Knickerbocker, Geneva.
69 *Psychoses Occurring During Pregnancy and the Puerperium. E. P. Ballintine, Rochester.
70 Habit and Diet in the Paroxysmal Neuroses. H. W. Hicks, Amsterdam.
71 Two or Three Points Concerning Insane Patients. G. W. Sargent, Seneca Castle.
72 Functions of the Medical School. E. H. Long, Buffalo.
73 Roentgenology for the General Practitioner. D. R. Bowen, Rome.

68. **Chronic Appendicitis.**—In the routine examination of digestive patients by colon dilatation, Bastedo noted some three years ago, that acute pain or tenderness in the region of McBurney's point or dilatation of the colon regularly meant appendicitis. He has many cases in which the finding has been proved correct by operation, and in every patient operated on in whom the sign was positive, a diseased appendix has been found. He has a few cases thought to be appendicitis in which the sign was negative; in some of these from one to three years have passed without any appendix manifestations; in the others operation was performed and the appendix found normal. In no case with the sign negative was appendicitis found at operation. Bastedo asks all surgeons to employ this method so that its exact value may be determined, for it would seem to be especially useful in cases in which slight tenderness to finger point pressure at McBurney's point still leaves doubt as to the advisability of operation. Pain and tenderness are regularly brought out at the site of old abdominal operations, and occasionally in various parts of an abdomen that has not been operated on. Their occurrence in the same spot at repeated examinations suggests adhesions.

69. **Psychoses During Pregnancy and Puerperium.**—One thousand women have been systematically and individually studied by Ballintine in reference to the causes, symptoms and outcome of their insanity, and the findings carefully recorded. It was found that 457 of these women had borne children (including 5 illegitimate pregnancies). In 141, or 30 per cent. of these cases, the onset of the psychosis occurred during either gestation, the puerperium, or lactation. Agreeing with the results of similar studies recently made by others, Ballintine found that the study of the 141 cases taught that puerperal insanity, so-called, presents no characteristic or constant symptomatology or pathology. On the contrary there are several forms of insanity that may occur during the puerperium or during pregnancy and these are forms that occur as frequently in the non-puerperal as in the puerperal state.

Considered etiologically, the puerperium in many cases was only an exciting or determining cause of the mental breakdown in the predisposed. In other cases the real causes of the psychosis were due to some accident at childbirth, or some other intercurrent disease or infection. In still other cases childbirth was simply incidental to the psychosis.

The majority of cases of insanity occurring in women before the climacteric may be included in three large groups, namely—dementia præcox or the deteriorating psychoses; manic-depressive psychoses; and infective-exhaustive psychoses. Eighty-seven per cent. of the 141 women under consideration glided readily into these three well-known groups of acute insanities. Dementia præcox, the largest group, included 46 persons, four being admitted more than once, bringing the total admission up to 50. The manic-depressive psychoses included 33 persons, 35 admissions. The infectious exhaustive psychoses and allied forms included 38 admissions. Other forms included 20 admissions. Among the patients under consideration were a few in whom a careful study shows that some premonitory symptoms presented themselves before gestation, but the condition was not recognized and in nearly all of these women the puerperal condition of childbirth was believed to be the cause of the insanity, and so recorded in the medical certificate on which they were admitted to the hospital.

### Dominion Medical Monthly, Toronto

*November*

74 The Action of Some Remedies in Myocardial Disease. V. E. Henderson, Toronto.
75 Repair of Injuries to the Pelvic Floor. A. C. Hendrick, Toronto.
76 Sixteenth International Congress of Medicine at Budapest. W. H. B. Aikens, Toronto.

### Journal Missouri State Medical Association, St. Louis

*November*

77 *Internal or Direct Splint in the Treatment of Fractures. H. E. Pearse, Kansas City.
78 Eleven Cases of Epidemic Meningitis Treated with Flexner's Serum. D. L. Harris, St. Louis.
79 Accidental Opening of the Lateral Sinus. E. T. Senseney, St. Louis.
80 Treatment of Parenchymatous and Exophthalmic Goiters. E. G. Blair, Kansas City, Mo.

81 *Injury to the Heart. L. Rassieur, St. Louis.
82 Results with the Wassermann Reaction for the Serodiagnosis of Syphilis. J. W. Marchildon, St. Louis.
83 Acute Perforative Appendicitis with Recovery. H. C. Crowell, Kansas City.

77. **Internal Splint in Fractures.**—Pearse uses a steel splint or splice fastened with screws directly to the replaced fragments of the bone, as first advocated and employed by Lane.

81. **Injury to the Heart.**—The first case was a penetrating stab wound of the right ventricle. The wound penetrated the left pleural cavity. The pericardium could be felt but no puncture was found. A gauze plug was tightly forced into the wound to stop any bleeding. On account of great shock, radical procedure was deferred. The patient was almost pulseless; he was dyspneic. A dressing was applied; morphin sulphate, gr. ¼, was given hypodermically once. Physiologic saline solution was given repeatedly hypodermically and by the rectum. Three days later, signs of a pyohemothorax were appearing. The left pleural cavity was almost entirely full of fluid. One inch of the sixth rib was removed in the left posterior axillary line. The pleural cavity was full of infected blood; a rubber drainage tube was introduced. The course now was one of empyema of the thorax. The patient grew gradually weaker and died seventeen days after the beginning of his trouble. From the postmortem findings it was evident that this was a case of penetrating wound of the right ventricle which would have healed without operation. Unfortunately death, caused by sepsis, intervened.

The second case was a non-penetrating gunshot wound of the apex of the left ventricle and of the margin of the left lung. An incision three inches long, parallel to the papillary line, was made extending through the gunshot wound. One inch of the fourth and fifth ribs was resected (one-half inch of the cartilaginous and one-half inch of the bony portion of the respective ribs).

### Interstate Medical Journal, St. Louis

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84 Investigation as to the Prevalence of Visual and Aural Defects Among the Public School Children of St. Louis County. A. E. Taussig, St. Louis.
85 Value of the Examination of Fresh Blood. S. Strouse, Chicago.
86 Improved Methods for the Examination of Sputum and Blood in Tuberculosis. F. T. B. Fest, Las Vegas, N. M.
87 Cutaneous Manifestations of Diseased Ductless Glands and the Application of Animal Therapy in Certain Skin Diseases. J. M. Winfield, Brooklyn.
88 Rheumatism in Young Children. D. E. Broderick, Kansas City, Mo.

### Therapeutic Gazette, Detroit

*November*

89 A Second Season's Experience of Hypertonic Transfusions in Cholera Controlled by Observations on the Blood Changes. L. Rogers, Calcutta, India.
90 *Method of Curing Quickly Beginning Gonorrhea by Sealing Argyrol in the Urethra. E. G. Ballenger, Atlanta, Ga.
91 Skin Grafting on Large Surfaces. E. K. Macomber, Amsterdom, N. Y.
92 Methods Employed for the Relief of Organic Stricture of the Urethra in the Genitourinary Surgical Department of the Jefferson Hospital. O. Horwitz, Philadelphia.

90. **Method of Curing Gonorrhea.**—The treatment employed by Ballenger was described in THE JOURNAL, Dec. 12, 1908, page 2081.

### Texas State Journal of Medicine, Fort Worth

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93 Electricity in General Medicine. J. M. Martin, Dallas.
94 The Technic of the Radical Mastoid Operation. D. T. Atkinson, Dallas.
95 Use and Abuse of Cocain in Ophthalmology. R. H. T. Mann, Texarkana.
96 Is a Double Iridectomy Advisable in Primary Bilateral Glaucoma? W. D. Jones, Dallas.
97 Transient Myopia of Traumatic Origin. W. Ralston, Houston.
98 Trachoma. C. Joyes, Fort Worth.
99 Treatment of Chronic Trachoma. J. M. Woodson, Temple.
100 Bullet in Brain—Removal and Recovery. R. M. Wickline, Austin.
101 Surgical Corsets. B. C. Eskridge, Houston.
102 Relation of Infant Feeding to Future of the Race. L. B. Kline, Houston.
103 Antigonococcus Serum. H. C. Moore.
104 Pellagra in Colorado. U. I. Phoenix, Colorado, Tex.

### Ohio State Medical Journal, Columbus

*November*

105 Myatonia Congenita of Oppenheim. W. B. Laffer, Cleveland.
106 *Phases of Sarcomata and their Removal. J. U. Barnhill, Columbus.
107 Complicated Case of Abdominal Pregnancy. M. Tate, Cincinnati.
108 Palliative Treatment of Prostatic Hypertrophy. A. J. McCracken, Bellefontaine.
109 Extension of Middle-Ear Suppuration Through the Internal Ear to the Brain. J. A. Thompson, Cincinnati.
110 *Multiple Myeloma: Report of Two Cases. G. F. Zinninger, Canton.

106. **Phases of Sarcomata.**—Of 11 cases reported by Barnhill only one could be called an early operation; in 4 there has been no sign of recurrence. The mortality is 63 per cent., the average life after operation being 16 months. In 3 of these cases the *x*-ray treatment was used—one patient has remained well for 5 years, another for 15 months, and the third is still under treatment. Barnhill is persuaded that without its use he should have had a recurrence in a case of sarcoma of the sacrogluteal region. He advocates the *x*-rays or the Coley toxins as supplements or auxiliaries of surgical measures. Of all patients operated on early, in the general line of cases as they come to the surgeon, probably not more than 25 per cent. remain permanently cured. These results could be greatly improved if cases were reported earlier and surgeons were prompt in operating in all suspected cases. Coley's statistics, including about 500 cases of inoperable sarcoma treated by the mixed toxins, show that 10 per cent. recover. This 10 per cent. is, of course, of the inoperable cases—uncured and uncurable, in all probability by any other means. Thus we have, with the combination of operative measures and the Coley serum, a chance to save about 35 per cent. Now, if, in addition to this, the *x*-ray treatment be employed, to prevent recurrence and complete the cures after excision, it is not improbable that we would be able to save another 10 or 15 per cent. of those affected with this type of malignant growth.

110. Abstracted in THE JOURNAL, May 22, 1909, p. 1688.

### Washington Medical Annals

*November*

111 Cesarean Section—The Obstetrician a Specialist. J. T. Kelley, Washington, D. C.
112 Therapeutic Value of Ions. P. S. Roy, Washington, D. C.
113 Junod's Blood Derivations. G. Werber, Washington, D. C.
114 Syphilis of Liver and Other Organs. D. S. Lamb, Washington, D. C.
115 Anomalous Origin of the Right Subclavian Artery. W. G. Owen, Washington, D. C.
116 *Bacterial Inoculations in the Prophylaxis and Treatment of Typhoid. J. B. Nichols, Washington, D. C.
117 Case of Osteomyelitis. W. P. Carr, Washington, D. C.
118 Plastic Operation to Free Adherent Arm. E. M. Hasbrouck, Washington, D. C.
119 Epidemic Carcinoma of Thyroid in Fishes. H. M. Smith, Washington, D. C.
120 Dermoid Cyst of Testicle. W. P. Carr, Washington.
121 Congenital Telangiectasis of Arm and Forearm. L. A. LaGarde, Washington, D. C.

116. **Bacterial Inoculations in Typhoid.**—Eight patients were injected by Nichols after the method of Smallman, with from 1 to 4 large doses (150 to 600 millions) each, at intervals of several days, according to the course of the case. One case was complicated with wild delirium, one with intestinal hemorrhage and relapse, one with a relapse, two were prolonged to 31 and 33 days; aside from these, the cases were mild to moderate, and uncomplicated. There was no uniform effect of the injections on the temperature, and in most instances the temperature course seemed unaffected. Only one injection (300 millions) was followed by any notable local reaction or marked soreness at the site of inoculation. The reactions seemed less than would be expected after similar injections in healthy subjects. No bad results from the inoculations were apparent. No effect on the clinical conditions, in the way of either improvement or aggravation of the symptoms was definitely demonstrable. The patients did very well, but that may have been coincidental.

Three patients were treated by a different system—smaller doses at regular and frequent intervals—that is, 50 millions every other day. One was a mild case of 24 days, with a slight relapse. The other two were very ill on admission, and had prolonged febrile courses of 45 and 40 days; but the improvement in one of these cases was so satisfactory that if the injections could be credited with the result the usefulness of the treatment would be confirmed.

The results in the whole series are quite inconclusive. They probably show that typhoid vaccine, even in quite large doses,

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produces no harmful effects; but to what extent the favorable course in most of the cases was effected by the inoculations is indeterminate. Relapses certainly were not prevented.

### Chicago Medical Recorder

*November*

122 Bismuth Paste Treatment of Tuberculous Sinuses. J. Ridlon and W. Blanchard, Chicago.
123 Sex Problems in Social Hygiene. W. T. Belfield, Chicago.
124 Housing in Illinois Cities. J. H. Tufts, Chicago.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### Lancet, London

*November 13*

1 The Nation and the Tropics. W. Osler.
2 *An Improved Method of Removing the Testicle and Spermatic Cord for Malignant Disease. J. Bland-Sutton.
3 Typical and Fractional Pneumonia. Sir C. Allbutt.
4 *Radium in Treatment of Cancer and Some Associated Conditions. H. T. Butlin.
5 Brain and Mind. C. Mercier.
6 *Civilization in Relation to the Abdominal Viscera, with Remarks on the Corset. W. A. Lane.
7 Rhythmic Interrupters for Use in Electrotherapeutic Work. H. L. Jones.
8 Treatment of Chronic Ulcer of Leg. W. Evans.
9 Atrophic Paralysis of the Muscles of Both Hands and Forearms; Recovery. R. T. Williamson.
10 *Enumeration of Blood Corpuscles by Simplified Methods. R. Samut.
11 Simultaneous Fracture of the Patellæ. W. Sheen.
12 Large Vesical Calculus, Weighing 26½ Ounces, Removed by Suprapubic Lithotomy; Recovery. W. W. Hearne.
13 The Plea of Lunacy in the Criminal Courts of Scotland. J. Glaister.

2. **Improved Method of Removing the Testicle.**—In a case of malignant disease of the testicle, Bland-Sutton determined to remove the testicle, the spermatic cord, with its arteries, veins, and lymphatics, and the associated lymph glands which lie on the inferior vena cava. The scrotum was freely incised and the right testicle was exposed and freed from its investments, and the spermatic cord was isolated as far as the internal abdominal ring. After much of the loose scrotal skin had been removed, the bleeding vessels were ligated with fine silk, and the testicle was enveloped in a fold of sterilized gauze. The second stage consisted in making a free incision of the right abdominal wall in the line of the linea semilunaris from the costal arch to the opening in the inguinal canal. The incision divided all the structures of the anterior abdominal wall, down to the peritoneum. Gentle tension on the testicle soon showed the position of the spermatic vessels lying in the loose areolar subperitoneal tissue. In order to isolate them, they were surrounded by a thin silk ligature just before their termination in the vena cava. The vas deferens and its artery were ligatured and divided at the brim of the pelvis.

At this stage the retroperitoneal tissues of the right lumbar region were well exposed and examined for enlarged lymph glands. Bland-Sutton found one on a level with the third lumbar vertebra, lying on the anterior face of the vena cava; although as large as a haricot bean it shelled out easily. A careful search was made for other lymph glands but without success. In spite of the large area of tissue opened up, there was little loss of blood, and the only vessels, apart from the spermatics, which required to be ligated were those divided in the scrotum and in the abdominal wall. The abdominal incision was closed by interrupted silk sutures, and the cut edges of the scrotum were brought together by sutures of thin silk. A narrow rubber tube was inserted into the depths of the wound for twenty-four hours. The wound was dressed with sterilized gauze and Gamgee tissue, held in position by a many-tail bandage, reinforced in the inguinal region by a spica bandage. Afebrile healing followed, with a rapid convalescence. The patient left the hospital on the seventeenth day after operation.

4. **Radium in Cancer.**—Butlin regards it possible by means of radium to promote the healing of epitheliomatous ulcers of very small extent, and to remove the induration around the ulcers. The cure of such conditions appears to be as satisfactory as the cure of rodent ulcers. In cases of epithelioma of any but the smallest extent we are not yet justified in advising patients whose disease is amenable to operation to try the effect of radium unless there are circumstances in the individual case which render an operation inadvisable. So far as associated affection of the lymph glands is concerned, Butlin has not yet seen anything which would warrant him in believing that the application of radium to the primary disease, even if it were successful, would avert affection of the glands, nor has he seen any case in which undoubted secondary affection of the glands was cured or decidedly benefited by the use of radium. Whether the application of radium over the glandular area before it is obviously affected will be found by-and-by to exercise a protective effect on the glands he does not know. At present the glands must be treated, as they have been hitherto, by operation.

The results which he has seen of the treatment of leucoplakia and allied conditions lead him to believe that radium only cures them by substituting thin scar-tissue for them, but does not restore the mucous membrane to the condition it was in before the development of the disease. Treatment by means of radium in such cases has, however, the great advantage over surgical removal or the use of destructive agents in that it is quite or almost painless, and that no actual inflammation and no open sore are produced by the applications when they are made by experienced operators.

6. **Abdominal Viscera and Corset.**—Lane calls attention to the disadvantage that the individual experiences from the habit of keeping the trunk constantly erect. The erect posture affects men and women differently, for the reason that the abdomen of a woman is relatively much longer than that of a man, while the female pelvis and thorax differ materially from the male. The abdominal wall of the woman is also rendered less efficient by pregnancy and by the support afforded by her dress. When the trunk is erect, there exist tendencies to the downward displacement of the viscera contained in the abdominal cavity. The several viscera are influenced by this tendency in a varying degree in proportion as they themselves vary in weight. The mechanics of the abdominal wall are such that the muscles exert a firm pressure on the viscera and tend to prevent their downward displacement. Still, in the abdomen, as well as in the body generally, the anatomy is so arranged that there must be a suitable relationship between the attitudes of activity and those of rest, or, in other words, that the erect posture, in which the viscera tend to drop, must be alternated sufficiently with a position in which all strain is taken off the viscera and the tendency for them to drop is in abeyance. This latter may be obtained by the assumption of the recumbent or of the squatting posture. In the former the viscera tend to displace upward by their own weight, while in the latter they are forced upward by the forcible apposition of the thighs.

This falling of the viscera leads to all sorts of disturbances—more or less annoying—and of more or less serious import. Lane says that the corset has not received the attention it deserves, so that by far the most important factor in the treatment of intestinal stasis and of its effects has been left in abeyance. He urges its therapeutic value on the medical profession as being the most effectual means by which the trouble to which he has called attention may be avoided or mitigated.

10. **Enumeration of Blood Corpuscles.**—Samut uses the Blenden-ocular "Ehrlich." With this instrument enumeration of corpuscles is done as follows: The drop of blood is obtained and diluted in the Thoma-Zeiss pipette and blown out onto the Thoma-Zeiss ruled slide in the usual way. When this has been placed on the microscope, five minutes are allowed to elapse. A No. 9 Leitz objective and a Blenden-ocular are used, the slit being so adjusted by means of the little knob that four squares of the central platform of the counting chamber just coincide with it. The red corpuscles are counted and the preparation may now be shifted as many times as desired, each count representing the number of corpuscles in four squares, since the slit corresponds exactly to four of the squares. The total number obtained after several such counts being divided by the number of counts gives the number of red corpuscles per field of four squares; hence division by four

gives the number per square. This number multiplied by 4,000 would represent the number of corpuscles per cubic millimeter were it not that the dilution has to be taken into account, and accordingly the result must be multiplied by 100 or 200.

Again, the Blenden-ocular may be used for the purpose of counting the leucocytes in the following manner: A dry film preparation of the blood to be examined is fixed and stained by Leishmann's or Jenner's stain. Using a No. 9 Leitz objective and a Blenden-ocular the red and white corpuscles are counted, the shutter of the ocular being at one-half or one-quarter of the total field of vision. The count is made several times through the same slit and an average of corpuscles to the field is obtained.

### British Medical Journal, London

*November 13*

14 Present Position of the Neurone Doctrine in Relation to Neuropathology. F. W. Mott.
15 *General Spinal Analgesia. T. Jonnesco.
16 The Departmental Committee on Humidity and Ventilation in Humid Cotton-Weaving Sheds. M. D. O'Connell.
17 *Classification of Cases of Pulmonary Tuberculosis. W. R. Huggard.
18 Acute Lupus Erythematosus. F. Beetham and F. W. Eurich.
19 Henoch's Purpura. L. Day.

15. This subject was discussed fully in THE JOURNAL, Nov. 27, 1909, page 1831, in the Department of General News.

17. **Classification of Pulmonary Tuberculosis.**—Huggard estimates numerically the extent, the intensity and the duration of the disease from 1, the lowest grade, to 5, the highest, except that the highest grade of intensity must be taken to range from 5 to 10, so as to include excessively acute or fulminating cases. The sum of these figures will indicate the class in which the case is to be placed:

EXTENT: *Amount of tubercle in the lung.* $E^1$ = Not more than 1/20 of the volume of one lung, whether in one spot (massive), or distributed throughout both lungs (scattered). $E^2$ = Not more than 1/10 of the volume of one lung, whether in one spot (massive), or distributed throughout both lungs (scattered). $E^3$ = Not more than 1/5 of the volume of one lung, whether in one spot (massive), or distributed throughout both lungs (scattered). $E^4$ = Not more than 3/10 to 5/10, or roughly, 1/3 to 1/2 of the volume of one lung, whether in one spot (massive), or distributed throughout both lungs (scattered). $E^5$ = Not more than 6/10 to 10/10, or roughly 2/3 to 1, of the volume of one lung, whether in one spot (massive), or distributed throughout both lungs (scattered).

INTENSITY: All the conditions named under one heading need not be present at the same time. $I^1$ = Sluggish, with little or no rise in temperature or other general symptoms. Only slight, if any, hemoptysis. Physical signs of active disease slight, just detectable. $I^2$ = Slight pyrexia and night sweats; moderate loss of appetite and of strength. Physical signs of moderate activity. Bronchial catarrh, if present, slight in amount, and restricted to the area of the tubercle. $I^3$ = Moderate fever and night sweats; seriously impaired health; loss of strength and weight. Hemoptysis, if present, followed by continued pyrexia. Physical signs of softening or of cavity formation. Bronchitis, if present, more marked or more diffused in $I^2$. Recent tubercle if elsewhere than in lungs, very slight. $I^4$ = Grave constitutional disturbance—more pronounced than in $I^3$. Physical signs of greater activity. Bronchitis, if present, more marked or more diffused. Tubercle if present elsewhere, more active than in $I^3$. $I^{5,10}$ = Very serious illness. Physical signs more active still. Bronchial catarrh more pronounced or more diffused. Acute or fulminating phthisis.

DURATION: $D^1$ = not over 3 months; $D^2$ = not over 6 months; $D^3$ = not over 1 year; $D^4$ = not over 3 years; $D^5$ = over 3 years.

### Clinical Journal, London

*November 10*

20 The Treatment of Fractures: With Special Reference to Mistakes that May Lead to Litigation. C. M. Moullin.
21 Abdominal Emergencies. R. Morison.
22 *Concerning Cough—Special Reference to a Method of Lessening Some of its Harmful Effects. W. E. Burton.

22. **Cough.**—The method referred to by Burton may be briefly described as "discharging" cough without closing the glottis, that is, by maintaining the glottis open from the first stage onward. So that when thus performed cough should consist of (1) a forced but not considerable inspiration made through the nose, the lips being closed; and followed (without closure of the glottis and without pause) by (2) a forced expiration through the mouth. Burton terms this "open" cough.

### Medical Press and Circular, London

*November 3*

23 Suppuration in the Accessory Nasal Sinuses. J. Donelan.
24 Hematemesis and its Surgical Treatment. W. Taylor.
25 Removal of the Normal Appendix. H. A. Lediard.
26 Quackery Law. G. F. Darker.
27 The Ethics of Journalism in Relation to Quackery. H. Sewill.

### Journal of Tropical Medicine and Hygiene, London

*November 1*

28 Hydatid Cyst of the Left Ventricle. Hydatid Disease in the Anglo-Egyptian Sudan. J. R. Christopherson.
29 *Burmese "Htone Na": A Peripheral Neuritis of Malarial Origin. L. G. Fink.

29. **Burmese "Htone Na."**—The object of Fink's communication is twofold: First, to establish the fact that certain forms of peripheral neuritis are of malarial origin. Second, to show in what respect these cases of malarial peripheral neuritis differ from cases of beriberi. In all cases, with one exception seen by Fink, there was a history of repeated attacks of ague. In the majority there had been some enlargement of the spleen. In some cases the symptoms came on gradually, in others suddenly, usually after a bout of malarial fever or exposure to damp or cold.

Signs and Symptoms: Fever.—Usually there is a previous history of ague, but there may be no abnormal temperature when the neuritis supervenes. Parts affected: usually the lower extremities; sometimes upper extremities as well. The distribution is usually symmetrical.

Knee reflexes: In the early stage this has been noticed to be markedly increased, but later this is entirely lost. This happens also in beriberi. Electric reactions were not tested. Anesthesia varies in extent and degree, but is usually best marked over the front and inner aspects of the legs. Hyperesthesia of skin was not noted. The patients in the early stages usually complain of burning or shooting pains, "pins and needles," or a feeling of numbness. This may affect the lower or upper extremities, chiefly the former. Pinching the skin over the affected part usually causes no pain. Hyperesthesia of muscles is always present. Muscular wasting is very marked in severe cases. The muscles become flabby. Paresis varies as in beriberi, and may go on to complete paralysis with atrophy of muscles. Edema is usually slight, sometimes entirely absent, and, as a rule, is confined to the region of the ankles. Epigastric tenderness or uneasiness at the pit of the stomach has not been observed before or after the neuritis supervened. Furthermore, obstinate vomiting does not occur in malarial neuritis as in some cases of beriberi.

Condition of heart is normal in malarial neuritis; there is no acceleration of the pulse, no palpitations, no cardiac murmurs as in beriberi. Hence, there are no sudden deaths from malarial neuritis as in beriberi. Dyspnea does not occur in the dry variety of malarial neuritis, however severe the case may be. Alteration of voice was not noticed, whereas in beriberi the voice is said to be very hoarse. Mental disturbances are exceedingly difficult to test in native patients. The mental disturbances caused by malarial toxemia are sometimes very severe, and cases of insanity from this cause have been recorded. Optic neuritis and even complete blindness have been known to follow severe attacks of malarial fever.

From the facts noted above it will be seen that while there are many points of similarity between cases of malarial neuritis and beriberi, there are important differences, and these are attributable to the selective influence of the poisons in each case, notably to the affection of the vagus nerves in beriberi and not in malarial neuritis.

### Glasgow Medical Journal

*November*

30 The Doctrine of Inflammation. R. Muir.
31 Pyelitis Complicating Pregnancy and the Puerperium. W. D. MacFarlane.
32 Pregnancy with Kidney Complications. J. Craig.

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## Annales de Gynécologie et d'Obstétrique, Paris

*October, XLVI, No. 10, pp. 577-656*

33 *Treatment of Puerperal Infection. A. Pinard.
34 Appendicitis and Diseases of the Adnexa. (L'appendicite et les maladies des annexes.) P. Segond.
35 *Kidney Operations. (Quelques reflexions à propos de 265 opérations rénales.) H. Hartmann.

**33. Puerperal Infection.**—Pinard presents in tabulated form the details of his obstetric service since 1882; the 10 tables and curves giving an instructive oversight of the results of the application of the technic he prefers. During the 26 years there were 58,213 childbirths, the total mortality in the first series of 12,580 being 0.75 per cent. and in the later series of 45,633, 0.44 per cent. His leading principle is that the parturient should be aseptic as also everything that touches her. In order to ensure this he concludes the general and local toilette with vaginal injection of an antiseptic, covering the parts with cotton thereafter. A similar vaginal injection is made at once after expulsion of the fetus and another after the third stage of labor. If there is suspicion of a chance for infection, antistreptococcus serum is injected and an intrauterine injection is given. He approves of curetting with thick fetid lochia but not otherwise, and regards it as dangerous when applied tardily. His curves show the apparent harmlessness of antistreptococcus serum while it seems to increase the resisting powers in streptococcus infection. He has gradually increased the dosage, now injecting 40 c.c. morning and night for 3 days or until all symptoms have vanished. A number of the women thus received from 300 to 600 c.c. and always, he says, to their great benefit. The morbidity has dropped from 25.76 to 5.64 per cent. since 1890, the total mortality from 0.72 to 0.18 per cent. It was only 0.03 per cent. in the 3,028 deliveries in 1907.

**35. Kidney Operations.**—Hartmann performed nephropexy in 31 cases but found that certain patients continued to suffer as before; the disturbances had evidently been of nervous origin or merely one element in multiple ptoses. Intermittent attacks of retention of urine, however, are an important indication for operative measures. In 57 cases of tuberculosis of the kidney, favorable results were attained by nephrectomy, but tuberculous epididymitis developed later in 2 out of the 15 men nephrectomized, another succumbed in less than 3 months to tuberculous meningitis and in several concomitant pulmonary lesions continued to develop. In some of the 42 women an existing pregnancy continued its course apparently unaffected by the nephrectomy. Only 4 of 11 patients with kidney stones and pyonephrosis recovered completely after a conservative operation; a fistula persisted in the others necessitating secondary nephrectomy. The mortality was 13.3 per cent. in 15 nephrectomies done for cancer; the first symptoms had been observed 3, 5 or 12 years before in a number. None of the patients has passed 4 years without recurrence; in several the recurrence developed after the third year.

## Archives de Médecine des Enfants, Paris

*October, XII, No. 10, pp. 721-800*

36 *Recurrent Vomiting in Children. (Vomissements cycliques chez les enfants.) L. Comby.
37 *The Neck Sign in Meningitis. (Signe de la nuque. Signe nouveau sur les membres inférieurs dans les méningites chez les enfants.) J. Brudzinski.
38 Milk for City Children. (Fourniture en masse aux nourrissons d'une nourriture convenable.) E. Deutsch.
39 *Pyelitis and Pyelonephritis as Complications of Measles. (Pyélites et pyélonéphrites comme complication de la rougeole.) M. de Biehler.

**36. Recurrent Vomiting in Children.**—Comby refers to recurring attacks of uncontrollable vomiting lasting for one or several days, observed generally in children between 2 and 6, who are apparently entirely well during the intervals. This singular syndrome has not attracted much attention until the last 10 years, he says, but a good description of it was published by Gruère as early as 1838. Comby himself has encountered 104 cases; 54 in girls. In 6 cases, 2 or 3 members of the family were affected. A neurotic-gouty family history was evident in 62 cases. Preceding dyspeptic disturbances were frequently encountered as also a history of some infectious disease, but appendicitis is one of the most frequent causes; liver trouble and acetonemia are more dubious factors. In the 10 fatal cases on record fatty degeneration of the liver and certain gastrointestinal lesions were encountered, but the appendix was not examined in all. The attack comes on suddenly as a rule, the vomiting continuing for one or three days, or even from eight to ten days. Obstinate constipation is the rule with great prostration, and sometimes there is vague abdominal pain. There may or may not be fever; sometimes it is very high. Coincidence or succession of migraine in some cases is mentioned. He found appendicitis in 50 per cent. of his cases, and regards appendicectomy as the best means to put an end to this recurring vomiting. Medical treatment consists in alkalines to combat the evident acid intoxication, giving from 30 to 60 grains of sodium bicarbonate a day. In prophylaxis he advises a vegetable diet, out-of-door life and general hygiene. During an attack nothing should be given by the mouth, and lavage of the stomach may arrest the vomiting. Morphin is a valuable aid, with saline infusion to restore the needed fluids. The diagnosis has generally wavered between indigestion, poisoning, migraine, meningitis, intestinal obstruction, peritonitis and appendicitis. In 3 of his cases the vomiting recurred even after appendicectomy. In prophylaxis he has frequently derived benefit from a powder containing 0.25 gm. each of calcined magnesia, benzonaphthol and sodium bicarbonate with 0.01 gm. pulverized nux vomica. One of these powders is taken before 2 meals for 10 days and then a wineglassful of Vichy water in their place for 10 days, after which the powders are resumed. This kept up systematically seems to relieve and ward off recurrence unless the trouble is due to the appendix. A simple indigestion or poisoning rarely induces such severe and incessant vomiting. He summarizes the details of his 104 cases. The vomiting recurred every month in some, every four months or more irregularly in others. An acid and chloroformic odor of the breath just before or during the attacks was noticed in a large number of the cases. He quotes extensively from American writers, especially J. P. Crozer Griffith in *American Journal of the Medical Sciences*, 1999, cxx, 553, who also reports a case in which the attacks recurred after removal of the appendix. In 2 of the 4 cases mentioned the children succumbed.

**37. New Sign in Meningitis in Children.**—Brudzinski's previous announcement of the value of the contralateral reflex as a sign of meningitis has been confirmed by his later experience in 17 cases of tuberculous meningitis and 6 of the epidemic variety. He now announces a sign which is even more constant in meningitis than the Kernig and Babinski signs, having been encountered in all but one of 48 cases of meningitis of various etiology, and this exception was in a moribund child. He discovered the sign accidentally in testing for rigidity of the back of the neck; as he tried to bend the neck he noticed flexure movements in the ankle, knee and hip joints. In one child with pneumonia the positive findings with this neck sign cast doubt on its specific nature until further signs of meningitis developed and lumbar puncture gave issue to a purulent fluid containing pneumococci. Increased pressure on the brain is not enough alone to induce this sign as it is absent in hydrocephalus and other abnormal brain conditions.

**39. Kidney Complications of Measles.**—Biehler declares that the fact that complications on the part of the kidneys are so seldom encountered with measles is because no one thinks of looking for them. She, however, has found pyelitis or pyelonephritis in 9 out of 147 cases of measles and albuminuria in 59 others. In some cases the absence of anything else to explain the persisting high fever first led to examination of the urine with resulting discovery of the kidney complication. Nephritis was discovered in a tenth case of mild measles. All but 2 of the 10 children were girls, and the kidneys were known to have been previously healthy. The children all recovered in less than six weeks but in one case nephritis occurred again during an attack later of scarlet fever.

## Revue de Médecine, Paris

*October, XXIX, No. 10, pp. 673-752*

40 Blastomycetic Infection. (Mycose de Gilchrist, blastomycose ou oidiomycose des Américains. I.) L. Laederich and H. R. Duval.
41 *Prolonged Treatment of Epilepsy with Bromid and Deprivation of Salt. E. Long.
42 Two Cases of Sclerosis of the Kidney, of Tuberculous Origin. (Les scléroses rénales d'origine tuberculeuse.) A. Moulonguet and V. Courtellemont.

41. **Treatment of Epilepsy.**—Long reports 7 years' experience in treatment of epilepsy by giving bromids while reducing the intake of salt. He expatiates on the necessity for (1) careful dosage of the bromids as their action is much enhanced under these conditions; (2) exact determination of the amount of salt still permissible; (3) most appropriate form of salt-free diet, and (4) the influence of this diet on the general health. His conclusions emphasize the importance of this method of treating epilepsy as the patients bear it well and it can be kept up indefinitely without harm. In the past, some of the accidents ascribed to bromid intoxication, he suggests, may have been due to the enhancing of the action of the bromid by the patient's casually and unintentionally ingesting less salt than usual, as when, for instance, his diet included more milk. On the other hand, if he happened to eat more salted food than usual, the action of bromids being taken at the time would be correspondingly reduced. The combination of a salt-free diet with bromids given for their sedative action in other affections may prove a valuable innovation in all fields of therapeutics. Long gives the details of 4 typical cases of severe epilepsy in which this treatment was kept up for years with great benefit, the patient being under observation for more than 7 years.

## Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

*XIV, No. 3, pp. 317-536. Last indexed September 11, p. 901*

43 *High Forceps. (Zur Frage der Wertigkeit der hohen Zange.) F. Miescher.
44 Conditions in the Pelvis with Congenital Dislocation of the Hip-Joint. (Beitrag zum Luxationsbecken.) O. Henrich.
45 *Febrile Childbirths and the Prognosis for the Puerperium. (Fieberhafte Geburten und deren Wochenbettsprognose.) E. Wirz.
46 Case of Encephalocystocele. (Hydromeningocele aus einer Encephalocystocele hervorgegangen, mit congenitalen Hautdefekten. Verhorntes geschichtetes Plattenepithel im Amnion.) A. Sitzenfrey.
47 *Predetermination of Sex of Offspring Before Conception and Determination of the Sex During the Pregnancy. (Bestimmung des Geschlechts am menschlichen Ei vor der Befruchtung und während der Schwangerschaft.) Otto Schöner (Rottach am Tegernsee).
48 Histology and Etiology of Sacral Tumors. E. Eiche.
49 Unusual Case of Incarceration of Gravid Retroflexed Uterus. A. Rosenberger.
50 Influence of Castration in Osteomalacia. M. Ogata.
51 Blood-Pressure in Pregnant and Parturient Women. (Blutdruckmessung bei Schwangeren, Gebärenden und Wöchnerinnen.) Sakurai.
52 Case of Polypous Uterine Sarcoma. J. Bäcker and K. Minich.

43. **The Expediency of High Forceps.**—Miescher has been able to find records of 484 childbirths in which extraction was by high forceps, and by comparing the immediate and ultimate outcome he seeks to determine the relative rank of this method of delivery. The list includes 26 deliveries with normal and 25 with contracted pelvis at the gynecologic clinic at Basle, which he reports in detail. The principle for the application of high forceps, he affirms in conclusion, is that it is the last resource of expectant treatment before perforation; he prefers it in the interests of the mother to a pelvis-enlarging operation. Consequently the forceps should be applied without force, tentatively, ready to proceed, in the home, to perforation or, in the hospital, to conservative Cesarean section or pubiotomy at need. The mortality of 30 per cent. among the children should not deter as, in the home, 70 per cent. of the children are delivered alive who otherwise would have succumbed to perforation.

45. **Febrile Deliveries and Prognosis for the Puerperium.**—Wirz reports from von Herff's clinic at Basle 212 febrile deliveries, about 52 per cent. in primiparæ. The outcome of the cases was the more favorable, the more conservative the management of the childbirth. The main cause for the fever is the premature rupture of the membranes; on this depend all the other phenomena observed. The more protracted the birth after rupture of the membranes, the worse the prognosis; it may be regarded as fatal if the febrile labor extends over several days. The height of the fever is no criterion as to the ultimate outcome. A persistently high pulse rate, even with relatively slight fever, is serious ground for alarm, especially when the temperature subsides as the pulse increases. Operative interference renders the outlook still graver; it should be considered only when tympany of the uterus and other signs indicate severe infection. Under all other conditions, spontaneous delivery seems to offer the best prospects for both mother and child

47. **Predetermination of Sex.**—Schöner has had access to a parochial register which records the dates of births in 315 families for nearly 100 years, a total of 1,615 children. Comparison of the details recorded here with his own experience and results of his observation has enabled him to form a theory, based on arguments which he relates in detail, to the effect that the sex of the ovum is already decided at conception, and that each ovary produces three ova in succession, two of the same sex, the third of the opposite sex. The other ovary then takes up the task and produces in turn its two ova of the same and one of the opposite sex. The functioning ovary is tender, and this tenderness persists all through the pregnancy and even a little beyond. It is thus possible, he believes, to determine the sex of the fetus by computing the number of menstruations between two conceptions.

## Medizinische Klinik, Berlin

*October 31, V, No. 44, pp. 1653-1692*

53 *Nature and Treatment of Asphyxia in New-Born Infants. (Wesen und Bekämpfungsmethoden der Asphyxia neonatorum.) C. Hoerder.
54 Disturbances in the Sympathetic System and Their Relation to Psychoneuroses. J. Kyrt. Commenced in No. 43.
55 Autoserotherapy in Serofibrinous Pleurisy. S. Szurek.
56 *Operation for Felon. (Zur Technik der Panaritiumoperation.) S. Kofmann.
57 Transmission of Acute Anterior Poliomyelitis to Monkeys. (Experimentelle Uebertragung der Poliomyelitis anterior acuta auf Affen.) W. Knoepfelmacher.
58 *Chronic Influenza. F. Franke.

53. **Asphyxia of the New-Born.**—Hoerder explains asphyxia of the new-born as the result of intrauterine stimulation of the respiration center by deprivation of oxygen from some interference with the circulation during the birth process. As the respiration center is thus stimulated, the fetus makes a breathing movement and this draws amniotic fluid into its air passages so that normal respiration is impossible when it finally emerges into the air. The spasmodic breathing movements that follow strong stimulation of the respiration center from lack of oxygen cause the aspirated substances to be drawn unusually deep into the air passages, as in drowning, and this is the cause and danger of asphyxia neonatorum. He warns that a sudden jet of cold water has been known to arrest the respiration even in health. Alternation of friction and dipping the child into cold and warm water are more to be advised. The stimulation from the air has also an influence, the tender skin of the new-born infant probably sharing in the respiratory process. He commends Ogata's modification of the Schultze method and Prochownik's method (the former was described in THE JOURNAL, Dec. 14, 1907, page 2044, and Volland's method, Oct. 2, 1909, page 1140), declaring that perseverance is liable to be rewarded with success even after hours. When he was a student, an infant in asphyxia was given up by the obstetrician in charge after prolonged efforts at revival had proved unavailing, but after he had left the room the students took the supposedly dead infant out of the crib to continue their practice of the Schultze swinging which they did not strive to make particularly gentle; in the hands of the third student the child was found to be alive.

56. **Treatment of Felon.**—Kofmann commends the method of incising along the tendons but never over them, reaching them from the side and never cutting into the joint if he can avoid it. He supplements this single incision with a crescent-shaped incision around the base of the nail, distant about 3 mm., cutting down to the bone. This prevents injury of the sensitive tip of the finger and deformity of the joint.

58. **Chronic Influenza.**—Franke ascribes to chronic influenza a number of common ailments which are generally regarded as pure complications and intercurrent affections, but which he thinks are due to the persistence of the influenza infection. The list includes tedious bronchitis, asthma, bone and joint affections, conjunctivitis, neurasthenia and catarrhal affections of various kinds both of the respiratory and gastrointestinal passages. The recurrence or persistence of influenza is frequently styled "mere cold," but every acute influenza, he affirms, should be regarded and treated as a serious illness and every effort made to cure it completely to prevent its persistence in a chronic form. If in any way possible, the

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patient should stay in bed and not try to fight the infection, particularly if there is much prostration. In nothing else is it so important to refrain from drafts and getting chilled; the body is incredibly sensitive to these factors during influenza infection, more objectively than subjectively. The patients "catch cold" even in dressing, and in some cases every chilling is followed by aggravation of the state of the blood, aspect and general condition. In some cases he has been able to transform the ailing patient completely by housing him in a warm room for three or five months. One of his own children had influenza twice before the age of 2, once followed by paralysis of the legs for three months and attacks resembling angina pectoris, the pulse dropping to 60. The child did not grow robust until he was kept in the house, protected against chilling, for four or five months for two consecutive winters. He warns his influenza patients: "Beware of getting chilled sitting, lying or standing," but he commends exercise, warmly clad, in almost any weather. Another peculiar feature of influenza is the extreme sensitiveness of the skin to mechanical injury. Complete rest of body and mind aids materially in the cure of bone and joint and other affections of influenzal origin. Bromids are indispensable in the nervous form but iron and quinin do not benefit as the apparent anemia is really a neurasthenic pseudoanemia; arsenic is the main reliance. He has frequently been amazed at the improvement on a mixture of 5 gm. Fowler's solution, 10 gm. tincture nux vomica and 15 gm. tincture valerian, of which 10 drops are taken in a large glass of water after meals. The dose is increased by one drop until 30 drops are being taken three times during the day. This is kept up for a month or two and then gradually reduced. Very hot brief baths are less debilitating than other forms of bathing in these cases and help in the toughening process. The raspberry tongue is characteristic of chronic influenza; the papillæ on the front of the tongue being red and swollen. A red stripe on the anterior pillars of the fauces is also characteristic during an acute attack and during acute exacerbations.

## Münchener medizinische Wochenschrift

*October 26, LVI, No. 43, pp. 2201-2248*

59 *The Functioning of Diseased Kidneys. (Funktion kranker Nieren.) K. Schlayer and Takayasu.
60 Leech Extract in Treatment of Eclampsia. (Bedeutung des Blutegelextraktes für die Therapie der Eklampsie.) F. Engelmann and C. Stade.
61 Cobra Venom Reaction. (Ueber die Kobragift aktivierende Eigenschaft menschlicher Blutserum und über den Mechanismus der Kobragifthämolyse.) W. Beyer.
62 *Serotherapy and its Dangers. (Ueber Serumbehandlung und ihre Gefahren.) E. Scheidemandel.
63 Demonstration of Tubercle Bacilli in the Blood. (Zum Nachweis der Tuberkelbazillen im strömenden Blute der Phthisiker.) A. Lippmann.
64 Possibility of Transformation of Human into Bovine Tubercle Bacilli. (Weitere experimentelle Beweise für die nahe Verwandtschaft der beim Menschen und beim Rinde vorkommenden Tuberkelbazillen und die Möglichkeit einer Umwandlung menschlicher Tuberkelbazillen — Typus humanus—in rindervirulente Formen—Typus bovinus.) A. Eber.
65 New Methods for Determination of Proteolytic Ferments and Antiferments. M. Mandelbaum.
66 *Milk Organotherapy in Climacteric Disturbances. (Zur Therapie der klimakterischen Störungen und der Dysporeunie.) C. J. Bucura.
67 Designation of Tuberculin Dosage. (Zur Bezeichnung der Tuberkulindosen.) Weinberger.
68 Technic for Extraperitoneal Cesarean Section and After-Care. (Zur Frage des Wundschutzes beim extraperitonealen Kaiserschnitt nebst einigen technischen Bemerkungen zu dieser Operation.) F. R. Brewitt.
69 Dangers of Tamponing Nasopharynx. (Gefahren der Tamponade des Nasenrachenraumes.) O. Mayer.
70 *Postoperative Duodenal Ileus. C. Weinbrenner.
71 Apparatus for Automatic Fixation and Embedding of Microscopic Specimens. G. Arndt.

59. **Functioning of Diseased Kidneys.**—Schlayer publishes the results of experimental research which show that the elimination of certain substances is exclusively the task of the tubules or of the vessels. Salt is evidently eliminated by the convoluted tubules and the elimination proceeds undisturbed, so long as they are intact, no matter how much the kidney may be diseased otherwise. On the other hand, lactose seems to be eliminated exclusively by the vessels so that the elimination proceeds unmodified by disease of the tubules. The experiments were made with salt, lactose and potassium iodid. The latter behaved like salt in these experiments. About 150 series of researches were made on rabbits; the nephritis was induced with chromin, aloin, corrosive sublimate or uranium, to act on the tubules, and with cantharidin or arsenic to act on the vessels. The result of this research demonstrates that there are two kinds of hyposthenuria, as he calls the excretion of abnormally thin urine. When the tubules are diseased the solid elements are unable to pass into the urine. When the vessels are unusually irritable they respond to the slightest stimuli by throwing off large amounts of water. This dilutes the urine but the solid elements are eliminated as usual, only more diluted. It is thus possible to distinguish between tubular and vascular hyposthenuria.

62. **Serotherapy and Its Dangers.**—Scheidemandel discusses the condition known as anaphylaxis, allergy or hypersusceptibility, and warns that the experiences to date show the possible peril with serotherapy. It should be restricted to cases in which it is absolutely necessary, and the patient's susceptibility should be determined, with minute doses first. Before giving the serum, inquiry should be made as to whether the patient has ever used it before. Scheidemandel thinks that it is possible that curative serums derived from monkeys may be better suited for clinical use than horse serum. He reports a case of severe collapse after a third injection of antistreptococcus serum given on account of a febrile osteomyelitis of the pelvis. These anaphylactic phenomena have been observed as late as three years after the first injection.

66. **Organotherapy of Climacteric Disturbances.**—Bucura suggests the use of milk from cows in heat as a form of organotherapy of climacteric disturbances. He is theoretically convinced that such milk contains exceptional amounts of the internal secretions of the ovaries, and that it might be possible to prevent disturbances from castration if such milk were systematically taken.

70. **Duodenal Ileus.**—Weinbrenner urges that more attention should be paid to postoperative duodenal ileus as it is so easily remedied. The syndrome is apparently that of perforation peritonitis with a stormy onset, but all disturbances subside if the patient assumes the ventral or the knee-elbow position. This relieves the mechanical trouble causing the disturbances. The possibility of this mechanical ileus should be borne in mind in every case of persisting postoperative vomiting of bile.

## Wiener klinische Wochenschrift, Vienna

*October 21, XXII, No. 42, pp. 1431-1468*

72 *Suture of Vessels in Man. (Gefässnaht am Menschen.) E. Ranzi. Arteriennaht.) J. Gobiet.
73 Seroreaction with Echinococcus Cysts. (Blutserumprobe bei Echinokokkuszyste.) A. Jianu.
74 Disappearance of Seroreaction in Syphilis, and Other Disputed Points. (Ueber das Schwinden der Wassermann-Neisser-Bruckschen Reaktion bei syphilitischen Erkrankungen und einige strittige Punkte derselben.) W. Jaworski and S. Lapinski.
75 *Glycosuria and Pregnancy. (Glykosurie und Schwangerschaft.) M. Reichenstein.
76 Influence of Famine Years in Finland on Incidence of Tuberculosis. (Einfluss von Notjahren auf die Tuberkulosehäufigkeit sowie die Latenz der Tuberkulose auf Grundlage der Kassationen beim finnischen Militär.) K. E. Linden.

*October 28, No. 43, pp. 1469-1506*

77 *Pancreatitis. P. Albrecht.
78 Changes in Pancreas with Glycosuria. (Ueber Veränderungen des Pankreas bei Zuckerkranken unter Berücksichtigung ätiologischer Momente und des klinischen Verlaufes.) A. v. Halasz.
79 *Vaccine Treatment of Skin Diseases. (Die aktive Immunisierung bei Akne, Furunkulose und Sykosis.) J. Sellei.
80 Cutaneous Reaction to Electrolytic Administration of Tuberculin. (Auftreten einer Hautreaktion bei der elektrolytischen Einführung von Tuberkulin.) F. Winkler.
81 *Removal of Hypophysis Tumor Through the Nose. F. Smoler.

72. **Suture of the Arteries.**—Ranzi reports four cases. They emphasize anew the importance of examining for disturbances of the circulation in every case of fracture; the trauma may have injured some vessel by a bone splinter or from thrombosis, without laceration of the vessels, or by compression from a hematoma or the vessels may have been cut in the injury. The suture of the artery was successful in all but one case in which the patient was not seen until twenty-four hours had elapsed after contusion of the arm and a plaster cast had been applied in the interim. The radial pulse was still missing when the cast was removed, and gangrene developed, notwithstanding the resection of the thrombosed portion and suture of the brachial artery. Gobiet reviews the his-

tory of the subject, mentioning that 74 cases have been recorded, including 17 of circular suture of an artery. He describes a successful case of suture of the axillary artery after removal of an arteriovenous aneurism in a young man. This makes the fifteenth aneurism operation followed by suture; the results were satisfactory in all. In another case a laceration of the popliteal artery from dislocation of the tibia was treated by resection and suture. Gangrene developed, requiring amputation, followed by smooth recovery. He thinks that this is the first case of the kind on record in which an attempt was made to save the limb after such an injury. The prognosis of this injury is very grave and if the defect is two inches long a simple suture is inadequate and the gap should be bridged by a piece of the saphena, excised for the purpose, or its equivalent.

75. **Glycosuria and Pregnancy.**—Reichenstein examined 93 pregnant women in respect to their tolerance for sugar, finding that the fact of the pregnancy seems to have a remarkable effect in reducing the limit of tolerance for sugar. A marked tendency is displayed for glycosuria, both spontaneous and alimentary, as also for alimentary levulosuria. He theorizes to explain it as the result of the action of the ovaries on the other glands with an internal secretion which normally regulate the carbohydrate metabolism, the liver, pancreas, thyroid, parathyroid and suprarenals.

77. **Treatment of Pancreatitis.**—Albrecht reports a case in which the symptoms indicated acute pancreatitis and the laparotomy revealed traces of fat necrosis near the pancreas, but the organ itself was not examined. The transverse colon was found much distended and a drain tube was introduced to form a Witzel fistula. The symptoms rapidly subsided and the patient, a workman of 39, was soon restored to health, except that a slight tendency to jaundice is apparent. Examination a year later showed alimentary glycosuria and abnormally small amounts of trypsin in the stools; these findings were accepted as indicating that the trouble the year before had been true pancreatitis. The clinical picture simulates perforation peritonitis or ileus, but the absence of increased peristalsis and of progressive vomiting turn the scale in favor of pancreatitis. The pulse, pressure and tenderness are not so pronounced as with perforation peritonitis, and the cyanosis of the face and a tendency to jaundice speak for pancreatitis. Another differentiating element is the absence of indican in the urine although positive findings do not absolutely exclude a pancreas affection. The fat tissue necrosis was of such slight extent in his case that the operation evidently had been done during the early phase of the trouble. Between the onset of the acute symptoms and the operation only five days had elapsed, and yet the patient was in such collapse that the condition seemed beyond relief, but the opening made into the intestine and drainage transformed the clinical picture at once, so that a fistula into the large intestine should be regarded as an important measure in acute pancreatitis with much meteorism. In conclusion, he urges the importance of keeping an oversight of all patients who have had acute pancreatitis. Phillips has reported that diabetes developed in 2 out of his 6 cases of chronic pancreatitis.

79. **Active Immunization Against Acne, Furunculosis, etc.**—Sellei reports good results with a staphylococcus vaccine in various staphylococcus affections of the skin. The best results were obtained in furunculosis, two or three applications arresting the affection. He describes the method of making the vaccine and its application.

81. **Hypophysis Tumor.**—Smoler reports a case in which the hypophysis tumor was readily removed by the nasal route, but the patient succumbed to pneumonia from aspiration of blood. In another case of the kind he would make a preliminary tracheotomy before attacking the tumor.

### Zentralblatt für Gynäkologie, Leipsic

*October 30, XXXIII, No. 44, pp. 1521-1552*

82 Acute Fatal Lysol Intoxication. (Akute Lysolvergiftung durch Uterusspülung während eines extraperitonealen Kaiserschnittes.) R. Birnbaum.

83 *Adrenalin in Uncontrollable Vomiting of Pregnancy. (Hyperemesis gravidarum und Adrenalintherapie.) S. Rebaudi.

84 *Emptying the Peritoneal Sac. (Ausschütten des Peritonealsackes.) J. Kocks.

83. **Vomiting of Pregnancy and Adrenalin Therapy.**—The case reported has been previously mentioned in these columns, Rebaudi stating that a few cubic centimeters of an extract of the suprarenal capsule proved effectual in conquering previously uncontrollable vomiting which for two months had been reducing the patient to extreme debility. The adrenalin did not seem to have any injurious by-effects either on the mother or the fetus.

84. **Emptying Out the Peritoneal Sac.**—Kocks has noticed in many cases that even vigorous irrigation and swabbing are not always able to clear the peritoneal sac of all clots. Those remaining are liable to prove an excellent culture medium for germs, and they explain many of the fatalities after laparotomy. In order to clear the peritoneal sac completely, he makes a practice of turning the patient over first on one side and then on the other and continuing this until the contents of the peritoneal sac have thus been literally all poured out.

### Riforma Medica, Naples

*November 1, XXV, No. 44, pp. 1206-1232*

85 Experience with Thiersch Flaps in Sixty-five Cases. O. Cignozzi.

86 The Proteolytic Antiferments in Acute Suppurating Processes. (Gli antifermenti proteolitici nella terapia dei processi suppurativi acuti.) D. Maragliano.

### Hygiea, Stockholm

*September, LXXI, No. 9, pp. 881-1005*

87 Hygienic Conditions in Country Schools in Sweden. (En svensk folkskola på landet.) G. Tornell.

88 Multiple Metastases of Malignant Thyroid Adenoma. (Metastaserande sköldkörteladenom.) G. D. Wilkens and G. Hedren.

89 Appendicectomy with Immediate Suture: Sixty Cases. (Redogörelse för den af mig använda metoden vid operation af varig appendicit.) E. Hedlund.

### Nordiskt Mediciniskt Arkiv, Stockholm

*XLII, Internal Medicine, No. 1. Last indexed August 28, p. 754*

90 *Suggestions for Improved Physical Diagnosis. C. E. Waller.

90. **Physical Diagnosis.**—Waller remarks that the diagnostician has now to determine not only the presence but the character of the tuberculous process in the lung, and he presents evidence to show that the usual method of percussing symmetrical points is liable to prove misleading and that much more reliable information can be derived from study of the non-tympanitic resonance at a given point tested with percussion of varying force. This reveals the extent and the degree of dulness far better than can be estimated from percussion of symmetrical points with percussion of uniform strength. He classifies the findings as follows: 1. With light percussion: The non-tympanitic resonance is heard during the entire phase of respiration but a trifle or distinctly shortened (dulness of the first degree: D, 1); or the non-tympanitic resonance is heard only during part of the respiration (D, 2), or no non-tympanitic resonance is audible. 2. Moderate percussion: The non-tympanitic resonance is heard (D, 3); or no non-tympanitic resonance is audible. 3. Forcible percussion: The non-tympanitic resonance is audible (D, 4), or none at all is heard (D, 5). By percussing in this way, he states, it is possible to detect incipient dulness earlier than by any other method, and the findings with different investigators or after different intervals can be readily compared. The percussion findings with pleuritic effusion, etc., do not come within the scope of this method of percussion. He commences the percussion at the points where the resonance normally is particularly clear instead of in the fossa above the clavicle and the supraspinous fossa. The best point is the infraclavicular fossa, a little toward the side from the median line of the fossa, and in the back, in the infrascapular space or the "stethoscopic triangle." After study of the resonance at these points by the scheme outlined above the percussion is carried further. He discusses further the breath sounds rhythmical with the pulse, prevailing opinions in regard to the staccato and systolic breath sounds differing widely both as to their origin and their dependence on the heart action. He explains them as the result of mechanical compression at each pulse wave of the parts of the lung near the large vessels. It is not a pathologic phenomenon, not at least as regards the lungs.

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When it is extremely pronounced and widespread the heart and large vessels should be examined. In conclusion, he discusses what is meant by the term "rough breathing" as used by Turban, Grancher and others, his definition being that it is not a true breath sound, but is probably due to muscular contraction and is of no importance for the diagnosis of pathologic conditions in the air passages, except as it apparently grows louder as the true breath sounds grow feebler in abnormal conditions.

### Norsk Magazin for Lægevidenskaben, Christiania

*October, LXX, No. 10, pp. 913-1040*

91 *Surgical Treatment of Laryngotracheal Stenosis. V. Uchermann.
92 *Placenta Prævia in Norway. N. Kahrs.
*November, No. 11, pp. 1041-1128*
93 *Glycerin in Pernicious Anemia. H. J. Vetlesen.
94 Reaction to Pathologic Cell Growth. (Om organismens reaktioner mod pathologisk cellevekst.) M. Haaland.
95 *Acute Articular Rheumatism and its Complications. (Lidt statistik over Rheumatismus acutus og dens komplikationer.) K. Thiis.

91. **Operative Treatment of Stenosis of Larynx and Trachea.**—Uchermann's long article was one of the addresses presented at the recent international medical congress, and discusses the subject on a broad basis of personal experiences.

92. **Placenta Prævia in Norway.**—Kahrs has found official records of 1,505 cases of placenta prævia among 2,858,901 births since 1853 and up to 1896. The record averages 1 case to 1,200 births, with the death of 7 of the mothers and of 30 of the children each year. He tabulates the cases to show the frequency in towns and rural districts and the comparative mortality after different obstetric interventions. The maternal mortality averaged 18.3 per cent. after version; 13.6 per cent. after forceps delivery; 25 after tamponing and 77.3 per cent. with natural delivery. The mortality of the children was 58.5 per cent in the 989 cases with version; 37.7 per cent. in the 239 with forceps; 50 per cent. with tamponing, and 11.4 per cent. in the 44 spontaneous deliveries. The total maternal mortality was 12.9 per cent.; and the fetal mortality 56.3 per cent.

93. **Glycerin in Pernicious Anemia.**—Vetlesen has given glycerin in 2 cases of pernicious anemia according to Talliquist and Faust's suggestion that glycerin might combine with the lipoid substance assumed to be responsible for the disintegration of the red corpuscles, combining to form a harmless product. The special lipoid substance found in the anemia from intestinal parasites proved to be oleic acid, and this combines with glycerin to form triolein. Vetlesen's first case was very encouraging and in the second administration of 3 tablespoonfuls of glycerin a day, with lemon juice, was followed in the course of two and a half months by an increase in the reds from 990,000 to 4,760,000, and of hemoglobin from 20 to 90 per cent. No other drugs were given except a little antipyrin and caffein for a day or so to combat a neuralgic headache. The patient was a woman of 33, six weeks after the birth of her fifth child. During the latter part of the last pregnancy there had been some edema of the legs and albuminuria, but after normal delivery the albumin disappeared almost entirely. Five weeks later great weakness, cardiovascular symptoms, vertigo and darkness before the eyes developed, with some fever and mental hebetude by the end of the week, extreme pallor, systolic anemic heart sounds, and retinal hemorrhages, but no hypochlorhydria. The red corpuscles were increased in size and irregular in shape. In less than a month under the glycerin the hemoglobin had increased from 20 to 60 per cent., and the reds from 990,000 to 2,860,000. By the end of the two months and a half the weight had increased by nearly 20 pounds.

95. **Acute Articular Rheumatism and its Complications.**—Thiis reviews the experience with 288 cases during 13 years at the Christiania hospital and also with 247 cases of heart disease, 32 of chorea, 89 of chronic rheumatism, and 34 of gonorrheal joint affections to determine their connection with acute rheumatism. A second attack of the acute articular rheumatism occurred in 25.5 per cent., a third in 12.3, and a fourth in 4 per cent., while a fifth, sixth and eighth was known in from 2 to 0.4 per cent., thus a total of 45 per cent. of the patients had the disease more than once. Two-thirds were between 10 and 30 years old. A preceding or accompanying infectious sore throat was noticed in 53 cases. Complications on the part of the heart occurred in 41 cases, 33 per cent. in patients under 10, 23.3 per cent. between 10 and 20, but only in 7 per cent. of 100 patients between 20 and 30 and never in the 20 patients over 50. In 113 of the 242 cases of heart disease there was a history of acute articular rheumatism, that is, in 46.5 per cent., of arteriosclerosis in 10.7 per cent., of syphilis in 9.2, and influenza in 2.5 per cent., and of scarlet fever, sepsis or chorea in from 1.6 to 1.2 per cent. Only 5 of the 32 patients with chorea had a history of acute rheumatism, but it was possible in 2 other cases, a total of 21.8 per cent. There was some cardiac defect in 31 per cent. of his cases of chorea; in 4 others the affection developed after a fright. About 50 per cent. of the chorea patients had no inherited neurotic or personal rheumatic tendency, but in the others mental derangement, alcoholism or chorea was evident in other members of the family or the parents. In one case exophthalmic goiter developed at the age of 26 after the girl had had five attacks of acute rheumatism. Vetlesen has reported 2 such cases among 43 with exophthalmic goiter, and in 8 he noticed rheumatic complications. In Thiis' 89 cases of chronic rheumatism, a directly preceding acute articular rheumatism was recorded in 14.6 per cent., and in 9 others after an interval of years. In 2 patients there were hallucinations during salicylic medication, suggesting intoxication, and another patient died. The latter was a servant maid of 27, but the exact amount of salicylate taken before entering the hospital was not known, and there were symptoms of diphtheria. Twelve of the patients with acute articular rheumatism were pregnant, and in 2 at the seventh or eighth month premature delivery occurred under the salicylic medication, but one was a syphilitic and the other had erysipelas at the time. One young woman developed urticaria five or ten minutes after taking a tablespoonful of a salicylate solution, equivalent to 15 grains.

### Ugeskrift for Læger, Copenhagen

*September 30, LXXI, No. 39, pp. 1071-1090*

96 *Mode of Action of Gastroenterostomy. (Gastroenterostomiens Virkemaade.) A. Pers.
*October 7, No. 40, pp. 1091-1116*
97 *Collective Inquiry in Regard to Cancer in Denmark. J. Fibiger.

96. **Action of Gastroenterostomy.**—Pers reports the results of Roentgen examination of 40 patients from a few months to six years after gastroenterostomy to determine its ultimate action. He found that the stomach emptied itself in from 10 to 25 minutes in 9 cases; in from 20 to 50 minutes in 15, and in about 90 minutes in 15. The gastroenterostomy thus answered its purpose of rapid draining away the contents of the stomach in nearly every case, and this effect was obtained whether the pylorus had previously been permeable or not. He gives typical skiagraphs of the findings and of the two exceptions in which the pylorus evidently participated in the evacuation of the stomach; in one of these there were still dyspeptic disturbances. The new opening had either become obstructed or the stomach musculature was too weak, so that the evacuation of the stomach proceeded more as under normal conditions.

97. **Report of the Danish Cancer Research Committee.**—Fibiger states that 1,668 question blanks were sent to medical men throughout Denmark; 144 reported that they were no longer practicing, but all the others, with 11 exceptions, filled out the question blanks with scrupulous care. Microscopic findings were mentioned in 35 per cent. of all the cases of cancer. Only 620 physicians had cancer patients in their charge on the day selected for the enquiry, April 1, 1908. Dropping a few duplicate cases, the number of known cancers in charge of physicians was 1,138 in a population of 2,650,000, that is, 0.43 per thousand inhabitants. This proportion is a little larger than is reported elsewhere, but may be due to more precise records. The proportion of cancer patients in the cities was somewhat larger than in the rural districts, three times as many uterine cancers being reported in the cities than in the rural districts, while gastric cancer is more frequent in the country. About 92 per cent. of the women with uterine cancer and 64 per cent. with mammary cancer

had borne children. The fact that 23 of 112 male patients with gastric cancer were alcoholics, and 7 of 16 with cancer of the esophagus and 4 of 11 with cancer of the liver, suggests liquor as a causal factor, but there is no history of liquor drinking among the 91 women with gastric cancer (with a single exception) and 11 with cancer of the esophagus and 6 of the liver. The influence of heredity seemed to be apparent in 5 or 6 and possibly in 7 per cent. of all the cases. The influence of contagion also seems to be indicated in a number of others, the total reaching 14 per cent., in which there was evidence in favor of the assumption of direct transmission of the cancer. This proportion was still higher, between 14 and 20 per cent., for gastrointestinal cancers. In conclusion he appeals for closer study of the particulars in regard to the anamnesis respecting possible contagion. The collective inquiry by the Danish committee, he says, is the most valuable contribution of the kind yet presented, as over 99 per cent. of the medical men throughout the country cooperated and with zealous thoroughness.

### Upsala Läkareförenings Förhandlingar

*XIV, Nos. 7-8, pp. 507-668. Last indexed August 7, p. 496*

98 *Primary Cancer of the Lungs. (Bidrag till kännedomen om den primära lungkancern.) S. Oerström.

99 *Development of Tuberculous Meningitis in Connection with Trauma. V. Hedesström.

100 Changes with Age in Number of Nucleated Cells in the Thymus. (Om åldersförändringar i de Hassal'ska kroppurnes antal.) I. Ryk.

101 Tuberculin Test for Differentiation of Tuberculous Salpingitis. (Om Kochska tuberkulinprofvet som diagnostikum vid den tuberkulösa salpingiten.) F. Zachrisson.

102 Thirty-five Cases of Ileus from Mechanical Obstacle. (Inre mekanisk tarmtillslutning.) G. Ekehorn.

98. **Primary Cancer in the Lungs.**—Oerström reports 7 cases of primary cancer of the lung, all but one in the right lung. The patients were between the ages of 47 and 69. One patient had had a dry cough at night for several years and began to feel weak a year before the cough increased and slight hoarseness was noticed, after which a tendency to dyspnea soon developed with increasing debility and pain in the right chest. Transient improvement followed tapping but the cancer progressed to a fatal termination four months after the increase in the cough had first suggested serious trouble. In the second case death occurred six months after the symptoms of oppression and pain in the right chest had first attracted attention. The first symptom in the third case was hoarseness, which persisted alone for nearly a year, when increasing emaciation and night sweats developed, followed by dull pain in the left thigh and inability to stand on the left leg. Signs of a lung tumor were found and spontaneous fracture of the femur confirmed the diagnosis of a metastatic cancer. Death ensued five months after the first serious symptoms. In the fourth case death occurred eight months after the patient first noticed that her right hand was growing weak and twitching. The jerkiness increased and the arm and back of the neck became involved in the spasms, after each of which the arm felt heavy and lifeless. These symptoms gradually increased to include the entire right side. On entering the hospital the clinical diagnosis was arteriosclerosis, aneurism of the aorta and brain tumor, but autopsy revealed a primary cancer in the right lung with metastases in the brain. The case shows how a metastatic brain cancer can overshadow the entire clinical picture while the primary growth escapes discovery. In the fifth case, chills were noticed and periods of great lassitude, followed in a month by development of pain in the right chest, severe cough and slight mucous expectoration, dyspnea and emaciation. The cancer diagnosed during life was found as anticipated in the right lung after death. It was accompanied by metastases in the liver, suprarenals, peritoneum, etc., and a hypernephroma was found in one kidney. The sixth patient was a soldier of 49 dying five months after he had first noticed pains in the left side of the chest radiating later to the stomach. He lost rapidly in weight and strength, but there was no cough although the physical signs indicated malignant disease in the left pleura. It proved to be a metastasis of a cancer in the left lung which had also induced metastases in the viscera. The seventh patient was a woman of 50, mother of 12 children, who had been coughing for two months, with a little blood at times in the scanty sputum; fine hard râles were heard over the left lung. She had also night sweats, but no tubercle bacilli in the sputum. The progressive dyspnea was explained by the autopsy findings in the seventh month, revealing a primary cancer in the right lung. The pathologic anatomy of the tumors in the various cases is described in detail and the prevalence of primary cancer in the lung is discussed on the basis of published records.

99. **Tuberculous Meningitis in Connection with Trauma.**—Hedesström reviews the literature on this subject and reports 5 cases from his own experience in which tuberculous meningitis followed a traumatism in persons with a primary focus elsewhere. The tuberculous meningitis was an autopsy surprise in 3 of the cases as attention had been directed solely to the trauma. The latter had probably roused the tubercle bacilli lying latent in some primary focus elsewhere and allowed their entrance into the blood where they settled in the meninges as the point of least resistance owing to the injury from the accident to the head. All the patients had been previously clinically healthy, and the trauma was comparatively trifling, but a few days afterward slight brain symptoms developed, increasing until the patients had typical meningitic symptoms by the fourteenth to the twenty-ninth day, with death the twenty-fourth to the fortieth day, the autopsy revealing the tuberculous nature of the meningitis and the unsuspected primary focus in the lungs or bronchial glands.

## Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

COLLECTANEA JACOBI. Collected Essays, Addresses, Scientific Papers and Miscellaneous Writings of A. Jacobi, M.D., University of Bonn (1853); LL.D., University of Michigan (1898), Columbia (1900), Yale (1905), Harvard (1906). Professor of Infantile Pathology and Therapeutics New York Medical College. In Eight Volumes. Edited by William J. Robinson, M.D., New York, 1909. Price, $15 per set. If ordered before January 1, $10. New York: The Critic and Guide Co., 1909.

ROTTER'S TYPISCHE OPERATIONEN. Kompendium der Chirurgischen Operationslehre. Mit besonderer Berücksichtigung der topographischen Anatomie, sowie der bedürfnisse des praktischen u. Feldarztes. 8 Auflage. Pp. 362, with illustrations. Herausgegeben von Dr. Alfred Schönwerth, K. Bayr. Oberstabsarzt und Privatdozent für Chirurgie. Cloth. Munich: J. F. Lehmann's Verlag, 1909.

GIRL AND WOMAN. By Caroline Wormeley Latimer, M.D., M.A., Formerly Instructor in Biology, Woman's College of Baltimore. With an Introduction by Howard A. Kelly, M.D., Professor of Gynecological Surgery, Johns Hopkins University. Cloth. Pp. 318. Price, $2. New York: D. Appleton & Co., 1910.

SOURED MILK AND PURE CULTURES OF LACTIC ACID BACILLI IN TREATMENT OF DISEASE. By George Herschell, M.D., Fellow of the Royal Society of Medicine. Second Edition. Cloth. Pp. 72, with illustrations. Price, 2/6 net. Chicago: Chicago Medical Book Co., 1909.

PRACTICAL X-RAY THERAPY. By Noble M. Eberhart, A.M., M.S., M.D., Professor and Head of the Department of Electrotherapy, Chicago College of Medicine and Surgery. Second Edition. Cloth. Pp. 250, with illustrations. Price, $1.50. Chicago: New Medicine Pub. Co.

RECENT ADVANCES IN PHYSICAL AND INORGANIC CHEMISTRY. By A. W. Stewart, D.Sc., Lecturer on Organic Chemistry in the University of Belfast. Cloth. Pp. 250. Price, $2.50. New York: Longmans, Green & Co., 1909.

DIE BASEDOW'SCHE KRANKHEIT. Von Dr. med. H. Sattler, o. ö. Professor der Augenheilkunde an der Universität Leipzig. I. Teil: Symptomatologie. Paper. Pp. 523. Price, 21 marks. Leipzig: Wilhelm Engelmann, 1909.

PRACTICAL THERAPEUTICS AND PRESCRIPTION WRITING. By Daniel M. Hoyt, M.D., Instructor in Therapeutics, University of Pennsylvania. Flexible Leather. Pp. 291. Price, $2.50. Philadelphia: Edward P. Dolbey & Co.

PREVENTABLE DISEASES. By Woods Hutchinson, A.M., M.D., Author of "Studies in Human and Comparative Pathology," etc. Cloth. Pp. 442. Price, $1.50. Boston: Houghton Mifflin Co., 1909.

BACTERIOLOGY FOR NURSES. By Isabel McIsaac, Author of "Primary Nursing Technique," etc. Cloth. Pp. 176, with illustrations. Price, $1.25. New York: The Macmillan Co., 1909.

STATE OF OHIO DAIRY AND FOOD DEPARTMENT BULLETIN. Patent or Proprietary Medicines. Renick W. Dunlap, State Dairy and Food Commissioner. Paper. Pp. 82.

REPORT OF THE COMMISSIONER OF EDUCATION FOR THE YEAR ENDED JUNE 30, 1909. Vol. I. Cloth. Pp. 598. Washington: Government Printing Office, 1909.

THE JOHN CREHAR LIBRARY. A List of Books in the Reading Room, 1909. Paper. Pp. 488. Chicago: Printed by order of the Board of Directors.

ANNUAL REPORT OF THE BROCKTON HOSPITAL COMPANY FOR THE YEAR 1908. Paper. Pp. 56.

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